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OGTC

Abstracts

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26–28 September 2024
Hofburg Vienna

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FÄLLE DES JAHRES 2024

Cases of the year 2024

F01

Lupus aut homo – woher droht Gefahr?

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Ein 9-jähriges Mädchen wurde mit seit drei Tagen bestehenden Hals-, Bauch- und atemabhängigen Thoraxschmerzen in unserer Notfallambulanz vorstellig. Die Vitalparameter waren mit Ausnahme des Blutdrucks (139/89 mmHg) in der Norm. Es waren keine Vorerkrankungen bekannt.

Im Thorax-Röntgen zeigten sich bronchopneumonische Veränderungen sowie Pleuraergüsse beidseits, sodass das Mädchen gegen anfänglichen Widerstand der Eltern stationär aufgenommen wurde. Im Aufnahmelabor waren eine milde Leukopenie und Anämie sowie eine milde Erhöhung der Aminotransferasen auffällig. Bei Verdacht auf eine atypische Pneumonie wurde eine antibiotische Therapie mit Clarithromycin p. o. eingeleitet. Bei klinischer Verschlechterung und Notwendigkeit einer Sauergabe erfolgte am 2. Tag eine rechtsseitige und zwei Tage später auch eine linksseitige Thoraxdrainage; wiederum war dafür Überzeugungsarbeit notwendig. Sämtliche infektiologische Befunde (inkl. Serologie, Pleurapunktat und bronchoalveoläre Lavage) waren unauffällig. In der Computertomographie des Thorax zeigten sich ausgedehnte kleinfleckige und interstitielle Konsolidierungen beidseits sowie eine mediastinale, bihiläre und axilläre Lymphadenopathie. Nach einigen Tagen Analysenzeit langten die höchst auffälligen rheumatologischen Befunde ein: Es zeigte sich ein ANA-Titer von 1:5120 mit erhöhten RNP70-AK, U1RNP-AK, SmD(p)-S-AK, Anti-ds-DNA-AK sowie Anti-Ribosomen-Protein-AK. Mit dieser Konstellation und dem klinischen Bild mit einer ausgeprägten Pleuritis und interstitiellen Lungenerkrankung stellte sich der hochgradige Verdacht auf eine Overlap Kollagenose (SLE/Sklerodermie). Zusätzlich zeigten sich die Anti-Cardiolipin-Antikörper stark erhöht.

Somit wurde unverzüglich eine i. v. Methylprednisolon-Stoßtherapie (20 mg/kg/d) über drei Tage eingeleitet und in weiterer Folge auf eine perorale Kortison-Therapie umgestellt. Die arterielle Hypertonie wurde mit Amlodipin behandelt; wegen des Antiphospholipidsyndroms wurde Acetylsalicysäure gegeben. Unter dieser Therapie besserte sich der klinische Zustand des Mädchens rasch; die Fördermenge der Pleuradrainagen war schnell rückläufig und auch die Sauerstoffgabe war nicht mehr erforderlich. Eine Umstellung auf eine immunmodulatorische Langzeittherapie war nicht möglich, da die Patientin nach Unterzeichnung eines Reverses aus dem Krankenhaus entlassen werden musste. Ambulante Kontrolltermine wurden nicht wahrgenommen, die Familie emigrierte.

Die mit Sternchen (*) markierten Autoren sind die korrespondierenden Autoren.

Literaturhinweise

1. Samad A, Wobma H, Casey A. Innovations in the care of childhood interstitial lung disease associated with connective tissue disease and immune-mediated disorders. Pediatr Pulmonol. 2024; 1–17. https://doi.org/10.1002/ppul.27068.

F02

Von Bauch bis Hirn – Eine extrapulmonale Challenge

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Ein 68-jähriger männlicher Patient stellt sich im Rahmen einer Covid-19-Infektion mit Verschlechterung des Allgemeinzustandes und seit längerem bestehendem Gewichtsverlust, Nachtschweiß und Husten vor. Bei sonographischem Hinweis auf Aszites finden sich im CT eine abdominelle Lymphadenopathie als auch Peritonitiszeichen mit Abszedierung im Omentum majus, allerdings ohne akute abdominelle Symptomatik. Thorakal imponieren eine mediastinale Lymphadenopathie, multiple pulmonale Konsolidierungen und Mikronoduli. Bei passagerer infektassoziierter Verwirrtheit zeigt sich im CT-Cerebrum ein zunächst unklares fokales Kleinhirnödem, ein MRT wird empfohlen.

Bei Psoriasisarthritis besteht eine immunsuppressive Therapie mit Methotrexat und Adalilumab seit zwei Jahren. Vor Therapiebeginn wurde bei latenter Tuberkuloseinfektion eine Chemoprävention mit Isoniazid und Rifampicin durchgeführt.

Mittels gewonnenem Bronchialsekret (ZN +++) wird die Diagnose einer Miliartuberkulose mit INH-Monoresistenz gestellt. Daraufhin wird eine Vierfachtherapie mit Rifampicin, Levofloxacin, Ethambutol und Pyrazinamid eingeleitet. Weitere Resistenzen können im Antibiogramm ausgeschlossen werden und klinisch zeigt sich ein gutes Therapieansprechen.

Aufgrund der Tuberkulosereaktivierung trotz adäquat durchgeführter Chemoprävention erfolgt eine Durchuntersuchung. Eine suspekte hypermetabole pulmonale Läsion wird transthorakal stanzbiopsiert, der histologische Befund ist ohne Malignomnachweis und bestätigt die Mykobakteriose.

Bei initial unklarem CT-Befund zeigt sich im MRT-Cerebrum tatsächlich eine 2,4 cm messende suspekte Herdläsion im linken Cerebellum (Tuberkulom DD Abszess DD Metastase). Nach neurologischer und neurochirurgischer Begutachtung erfolgt vorerst eine Observanz unter tuberkulostatischer Therapie mit MR-Kontrollen und cerebralem FDG-PET.

Unter Therapie imponieren die pulmonalen und abdominellen Herde bildgebend regredient, hingegen die cerebelläre Läsion über 2,5 Monate laufend progredient mit zunehmend raumfordernder Wirkung, zentraler Einschmelzung und perifokalem Ödem; allerdings ohne klinische Symptomatik. Radiologischerseits kann ein Malignom nicht ausgeschlossen werden. Letztendlich wird eine osteoplastische Kraniotomie und Exstirpation komplikationslos ohne Folgeschäden durchgeführt. Histologisch ergibt sich tatsächlich der Befund eines in-toto-resezierten chronischen tuberkulösen Abszesses mit Erregernachweis. Die Therapie wird deshalb auf insgesamt 12 Monate verlängert und vor Beendigung eine MR-Cerebrum-Kontrolle veranlasst. Erfreulicherweise zeigt sich hier ein stabiler Befund ohne Hinweis auf floride Entzündung.

F03

„Occam's razor"

Baki Akca

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Patientendaten und Anamnese: Eine 60-jährige afghanische Mutter kommt in unsere Allgemeinambulanz zur Tuberkuloseabklärung, da kurz zuvor eine offene pulmonale Tbc bei ihrer Tochter auf der Kinderabteilung diagnostiziert wurde. Von den Beschwerden her gibt die Mutter trockenes Husten, Nachtschweiß und gelegentliches Stechen in der Brust an. Bis auf einen Vitamin D Mangel und Katarakt sind keine Vordiagnosen bekannt. Entsprechend nimmt die Patientin bis auf die Vitamin D Substitution und gelegentliches Ibuprofen keine Medikamente. Keine Allergien bekannt.

Diagnostik und Diagnose: Der Status präsens und sämtliche Laborwerte sind unauffällig, allerdings der Quantiferontest positiv. Im CT-Thorax zeigen sich bds. vermehrt Milchglasareale, flaue infiltratsuspekte Konsolidierungen bds., auffällig vermehrte Mikronoduli bds und eine ausgeprägte LAP hilär, mediastinal, paraaortal und supraklaviculär, Basal werden zusätzlich retikuläre Verdichtungen bds beschrieben. Nach Occam's razor, eine Methodik aus der Heuristik bzw. Scholastik, die besagt, dass man die einfachste Hypothese zur Erklärung eines Sachverhalts zuerst ausschließen sollte, ist unsere Arbeitshypothese bei dieser Konstellation an Befunde eine floride Tuberkulose. Weder im induzierten Sputum noch in der Bronchoskopie kann jedoch eine Tbc nachgewiesen werden. In der BAL kann jedoch mithilfe auswärtiger Laborzentren für Tropenmedizin eine pulmonale Parasitose mit **Strongyloides stercoralis** schließlich diagnostiziert werden. Mit einer weltweiten Prävalenz von 600 Mio. ist diese Parasitose in Ostasien, Afrika und Südamerika sehr verbreitet. Ergänzend werden folgende Untersuchungen durchgeführt: cMRT, augenärztliche Untersuchung, multiple Stuhlprobentests, Urin und Sputum Untersuchung. Sämtliche ergänzende Untersuchungen sind unauffällig, so dass von einer (vermutlich) singulär pulmonalen Befall mit noch schwach ausgeprägter Symptomatik ausgegangen wird. Die Parasitose war somit insgesamt ein Zufallsbefund.

Differentialdiagnostik: Tbc, Parasitosen, EAA, eosinophile Pneumonie, ILD usw.

Therapie: Ivermectin 200 mcg/kg/KG für 2 Tage.

Ergebnis: Im CT-Thorax post Therapie deutliche Rückbildung der genannten Pathologien. Pat. ist geheilt.

Literaturhinweise

1. Uptodate. https://www.uptodate.com/contents/strongyloidiasis. Accessed 07Sep2024.
2. Bae K, Jeon KN, Ha JY, Lee JS, Na BK. Pulmonary strongyloidiasis presenting micronodules on chest computed tomography. J Thorac Dis. 2018;10(8):E612–E5. https://doi.org/10.21037/jtd.2018.07.32. PMID: 30233896; PMCID: PMC6129929.
3. Hailu T, Nibret E, Amor A, Munshea A. Strongyloidiasis in Africa: Systematic Review and Meta-Analysis on Prevalence, Diagnostic Methods, and Study Settings. Biomed Res Int. 2020;15(2020):2868564.https://doi.org/10.1155/2020/2868564. PMID: 33274200; PMCID: PMC7683116.
4. Nabeya D, Haranaga S, Parrott GL, Kinjo T, Nahar S, Tanaka T, Hirata T, Hokama A, Tateyama M, Fujita J. Pulmonary strongyloidiasis: assessment between manifestation and radiological findings in 16 severe strongyloidiasis cases. BMC Infect Dis. 2017;17(1):320–2. https://doi.org/10.1186/s12879-017-2430-9. PMID: 28464844; PMCID: PMC5414214.
5. Mokhlesi B, Shulzhenko O, Garimella PS, Kuma L, Pulmonary Strongyloidiasis MC. The Varied Clinical Presentations. Clin Pulm Med. 2004;11(1):6–13. https://doi.org/10.1097/01.cpm.0000107609.50629.69. PMID: 20111672; PMCID: PMC2812430.

F04

Rauchen ist tödlich – ein ungewöhnlicher autotherapeutischer Zugang zur Behandlung des schweren Lungenemphysems

Matthias Gechter

Krankenhaus der Elisabethinen Graz – Abteilung für Innere Medizin – Schwerpunkt Pulmologie

Patientinnencharakteristika:

- Frau J., 60 Jahre
- langjährige, floride Raucherin, an unserer Abteilung in pulmologischer Betreuung aufgrund einer end-stage COPD mit schwerem Lungenemphysem (LTOT, Heim NIV non vult), Prednisolon-Dauertherapie
- pulmonale Kachexie, (ieL) Cortison-induzierter DM, Osteoporose

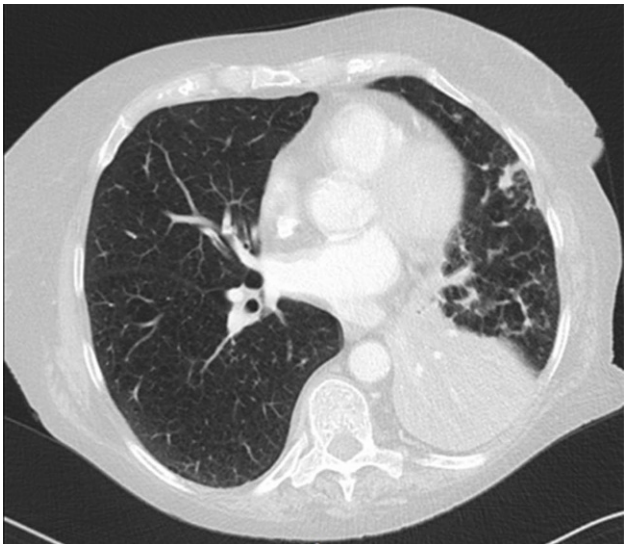

Abb. 1 | F04 CT Thorax

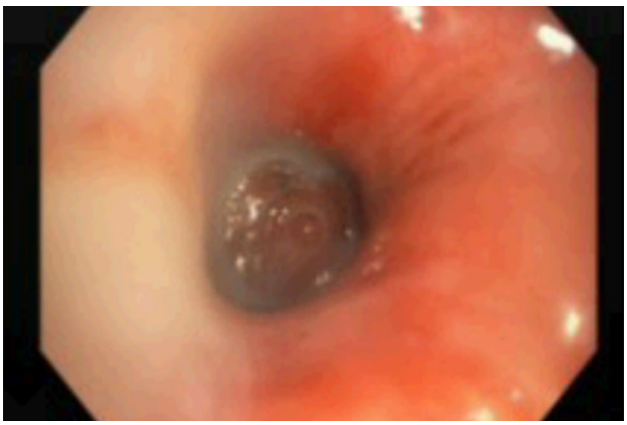

Abb. 2 | F04 Bronchoskopie (Unterlappenbronchus links) in Sedoanalgesie

- Die Patientin wird in unserer Ambulanz vorstellig mit Fieber, MMA, zunehmendem Husten und vermehrten Sputum (grün-gelblich)

Diagnostik: Laborchemie: Leukos 19.200/µl CRP 215 mg/dl Hb 11,3 g/dl Crea 0,38

Diagnose: (V. a. Retentions-)Pneumonie rechter Unterlappen, V. a. Verlegung des Unterlappenbronchus rechts

Therapie: Pip/Taz 4,5 g 3 × täglich

Hier zeigt sich eine rötliche Membran, die den Unterlappenbronchus links verschließt. Diese kann geborgen werden. Darunter erscheint ein Plastikröhrchen, das der Bronchialwand anliegt und durchgängig ist. Dieses kann nicht geborgen werden.

Die Membran und das Plastikröhrchen können dann als Aufsatzfilter einer Zigarette identifiziert werden.

Pat. bejat, dass sie die Aufsetzfilter benutzt – jedoch ist ihr niemals aufgefallen, dass ein Filter nach dem Rauchen fehlt, sie hätte auch nie vermehrt Husten müssen (im Sinne einer Aspiration?)

Letzter Kontakt vor wenigen Wochen über unserer MobiRem – Pat. zuhause gut versorgt, in ihrem Umfeld mobil, respiratorisch auf niedrigem Niveau stabil – sie benutzt weiterhin Aufsetzfilter.

F05

Gesucht: Eine seltene genetische Lungenerkrankung, entdeckte durch drei Ärzte

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Patientencharakteristik, Anamnese und Symptome:

- 25-jährige Österreicherinmit leichtem Asthmabronchiale seit der Kindheit, das gut kontrolliert ist, ansonsten keine anderen Erkrankungen bekannt.
- Überweisung in die Notaufnahme wegen des Verdachts auf Mantelpneumothorax.
- Die Patientin leidet seit 4 Tagen unter Schmerzen in der Brust und Belastungsdyspnoe.

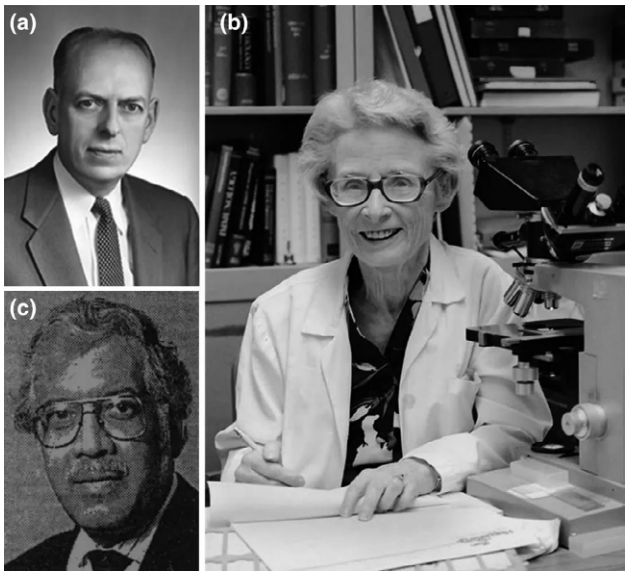

Fig. 1 | F05 a) Arthur R. Birt, b) Georgina R. Hogg, and c) William J. Dubé

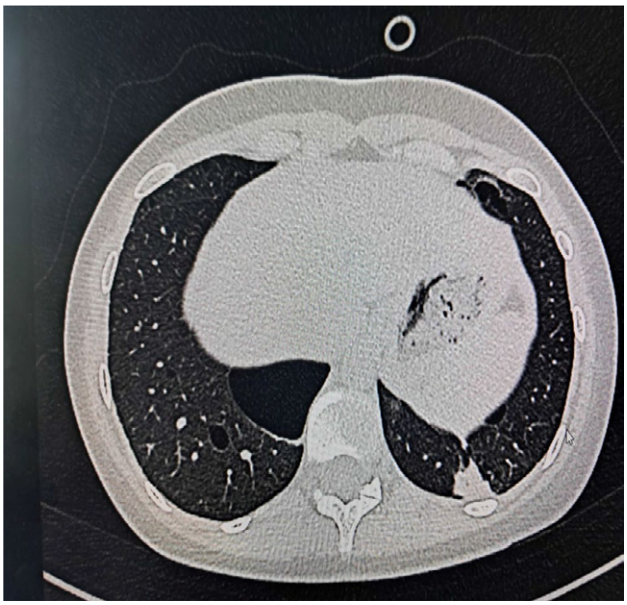

Abb. 2 | F05 Multiple irreguläer basal betonte Lungenzysten

- Sie verneint ein Trauma des Brustkorbs, sie ist Nieraucherin. Sie berichtet, dass auch ihre Mutter und ihre Cousins bereits einen Pneumothorax gehabt hätten.
- Bei der Aufnahme sind die Vitalparameter stabil und sie hat kein Fieber.

Diagnostik und Diagnose:

- Die Röntgenaufnahme des Thorax zeigt einen großen linksseitigen Pneumothorax mit minimaler Verschiebung der Mittellinie nach rechts.
- DieRoutine-Laboruntersuchungen sind unauffällig. Alpha-1-Antitrypsin liegt im Normbereich.
- Weitere Befunde: Autoimmunserologien inklusive RF, ANA, ANCA, CCP, IgE + Standard-RAST negativ
- Sonografie von Oberbauch und Nieren: altersentsprechend
- CT-Thorax nach Drainage: Multiple irregular basal betonte Lungenzysten, Konsolidierung links basal
- Gentest auf FCLN 1 und TSC 1 und 2 (Humangenetik), VEGF-D-Spiegel; Genetische Tests bestätigten eine Mutation im FLCN-Gen, die zu BHDS passt

Differentialdiagnose:

- Lymphangioleiomyomatose(LAM), Emphysem, Alpha-1-Antitrypsin-Mangel, LIP

Therapie: Anfänglich wurden konservative Behandlungsmaßnahmen durchgeführt. Bei Fortschreiten des Pneumothorax wurde ein Truclose®-System angelegt. Dies führte zu einer raschen Resorption des Pneumothorax.

Literaturhinweise

1. Menko FH, van Steensel MA, Giraud S, Friis-Hansen L, Richard S, Ungari S, Nordenskjöld M, Hansen TV, Solly J, Maher ER. Birt-Hogg-Dubé syndrome: diagnosis and management. Lancet Oncol. 2009;10(12):1199–206.

F06

Der Rhythmus stimmt, die Lunge blutet

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Wir berichten über einen 41-jährigen Patienten, der im Februar 2024 auf unsere pneumologische Sprechstunde zugewiesen wurde.

Zum Vorstellungszeitpunkt selbst bestand keine kardiopulmonale Symptomatik. Als Vorerkrankungen sind eine dilatative Kardiomyopathie sowie ein paroxysmales Vorhofflimmern zu nennen, weswegen im März 2023 eine Radiofrequenz-Ablation der Pulmonalvenenostien erfolgte. Im weiteren Verlauf traten im Oktober und November 2023 zwei Episoden von Hämoptysen auf, weswegen eine stationäre Behandlung auf einer internistischen Normalstation heimatnah erfolgte. In den Thorax-CT's zeigten sich zu diesen Zeitpunkten fleckförmige Milchglasareale im Oberlappen links. Nach Pausierung und schlussendlich Absetzen der oralen Antikoagulation ab November 2023 sistierte die Symptomatik, weswegen keine weiterführende Diagnostik hinsichtlich der Ätiologie der Hämoptysen erfolgte.

In einem vorab geplanten Angio-CT (Koronararterien und Thorax) im Dezember 2023 wurden weiterhin flaue Milchglasareale im Oberlappen links sowie zusätzlich eine suspekte Weichteilformation hilär links (retrospektiv bereits im Oktober 2023 nachweisbar) beschrieben. Ein ergänzend durchgeführtes FDG-PET sowie eine ausführliche pneumologische Abklärung, insbesondere auch hinsichtlich einer möglichen Vaskulitis, blieben ohne wegweisende Zusatzbefunde. Nach Besprechung im ILD-Board erfolgte im Februar 2024 ein Angio-CT mit einem spezifischen Pulmonalvenen-Protokoll, worin eine hochgradige Abgangsstenose der linken oberen Pulmonalvene mit konsekutivem Rückstau zur Darstellung kam – dies neu im Vergleich zu einem präinterventionellem Herz-MRT.

Eine Pulmonalvenenstenose ist eine seltene Komplikation nach Vorhofflimmerablation, welche in 1–3 % der Fälle auftritt. Die zeitliche Manifestation nach Intervention beträgt Wochen bis Monate, die klinische Präsentation ist von völlig asymptomatischen Verläufen über unspezifische kardiopulmonale Symptome bis hin zu Hämoptysen sehr variabel. Ebenso stellt die erschwerte Darstellbarkeit der Pulmonalvenen eine zusätzliche diagnostische Hürde dar. Therapeutisch wird eine perkutane Intervention (Ballondilatation, gegebenenfalls Stentimplantation) empfohlen, wobei die Restenoserate trotz Stentimplantation bis zu 57 % beträgt.

Aufgrund der anhaltenden Beschwerdefreiheit unseres Patienten seit November 2023 wurde nach interdisziplinärer Rücksprache und dem Patientenwunsch entsprechend bis dato ein abwartendes Prozedere verfolgt.

Literaturhinweise

1. Respir Med. 2016 Aug:117:215–22.
2. EuroIntervention. 2016 May 17:12 Suppl X:X31–X34.
3. Circulation. 2005 Feb 8;111(5):546–54

F07

„Multidisziplinär zum Erfolg"

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Anamnese & Symptomatik: Ein 79-jähriger Mann bemerkte im September 2022 eine schmerzhafte Schwellung und Rötung der linken Ohrmuschel und wurde in der Notaufnahme vorstellig. Laborchemisch bestand eine CRP-Erhöhung, zusätzlich Fieber bis 38,5°. Anamnestisch waren zum damaligen Zeitpunkt eine plötzlich aufgetretene Handschwellung beidseits (05/2022), eine Uveitis anterior (06/2022) sowie eine Anämie zu erheben. In weiterer Folge traten eine Vaskulitis der kleinen Gefäße, eine Arthritis sowie eine interstitielle Lungenerkrankung hinzu.

Diagnostik: Aufgrund des diffusen Symptomkomplexes erfolgte von 09/2022 bis Mitte 2023 eine ausführliche Diagnostik: Initial erfolgte 09/2022 bei V. a. „Relapsing perichondritis eine Stanzbiopsie der linken Ohrmuschel. Mitte Oktober 2022 folgte bei makulopapulösen Exanthem eine Hautbiopsie. Über die onkologische Abteilung folgte ein Neoplasie-Ausschluss mittels Ganzkörper-MRT. Nach Ausschluss eines Multiplen Myeloms (Beckenkammbiopsie) wurde bei Hypergammaglobulinämie mit IgGκ-Paraproteinämie die Diagnose MGUS gestellt. Nach einem Wanderunfall mit V. a. Rippenfraktur erfolgte ein Thoraxröntgen, in dem sich ein diffuses Verschattungsmuster bipulmonal zeigte. Im HR-CT zeigten sich Mittel- & Oberlappenbetonte retikulonoduläre Veränderungen sowie Konsolidierungen mit Michglasarealen. Eine Bronchoskopie mit BAL im UK-Krems zeigte eine neutrophile Alveolitis und eine parenchymatöse Entzündung. Nach Ausschluss einer Infektion mit pneumopathologischen Keimen wurde ein VEXAS-Syndrom in Betracht gezogen und eine entsprechende Genmutationsanalyse durchgeführt. Hier bestätigte sich die UBA1-Genmutation, und die Diagnose VEXAS-Syndrom konnte gesichert werden.

Therapie: Nach einer Literaturrecherche wurde eine Therapie mit dem JAK-Inhibitor Ruxolitinib begonnen und die low-dose Kortisontherapie fortgeführt. Bei der letzten Kontrolle im März 2024 war der Patient beschwerdefrei, die laborchemischen Werte normal und die Lungeninfiltrate vollständig rückgebildet.

Literaturhinweise

1. VEXAS-Syndrom – Erfolg der multidisziplinären Zusammenarbeit – verfasst von: OÄ Dr. V. Ferincz, BSc, K. Hackner, G. Kopetzky, K. Schöls, C. Wegscheider, A. Mihalcz, A. Maieron
2. Somatic Mutations in UBA1 and Severe Adult-Onset Autoinflammatory Disease – David B. Beck, M.D., Ph.D. et al. y<a

F08

From Cough to Crisis

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Dieser Fallbericht handelt von einer 84-jährigen iranischen Frau, die in der Klinik Penzing (Wien) aufgrund einer Pneumonie vorstellig wurde. Anamnestisch bestand seit zwei Wochen zunehmendes Krankheitsgefühl mit Husten, Atemnot, Myalgie, Arthralgie sowie Fieber bis 39 °C. Komorbiditäten umfassten eine Niereninsuffizienz, Morbus Basedow, arterielle Hypertonie sowie Arteriosklerose.

Bei Aufnahme wurde eine respiratorische Insuffizienz Typ I festgestellt. Das Labor zeigte massiv erhöhte Entzündungsparameter. Das Lungenröntgen ließ eine bilaterale Pneumonie vermuten. PCR-Tests auf respiratorische Viren waren negativ, die Antikörper gegen *Mycoplasma pneumoniae* erhöht. Trotz gezielter Antibiotikatherapie kam es zu einer stetigen Verschlechterung und einem Anstieg der Entzündungsparameter. Eine Computertomographie zeigte eine mediastinale, hiläre und axilläre Lymphadenopathie, jedoch keine pneumonischen Konsolidierungen. Die Milz war geringgradig vergrößert. Trotz Eskalation der antibiotischen Therapie entwickelte die Patientin einen septischen Schock mit Multiorganversagen und musste in Folge intubiert und hämodiafiltriert werden. Insgesamt frei Lymphknotenbiopsien schlossen eine maligne Erkrankung aus. Die Autoimmundiagnostik mit Vaskulitis-Autoantikörper war negativ. In der erweiterten Erregerdiagnostik wurden keine relevanten Pathogene isoliert.

Die Patientin zeigte einen therapierefraktären Verlauf mit progredientem Katecholamin-Bedarf, anhaltendem Fieber, transfusionspflichtiger Anämie und Thrombopenie. Die Durchflusszytometrie zeigte eine reduzierte NK-Zellaktivität. Auffällig waren steigende Triglyceride sowie ein zunehmender Fibrinogen-Verbrauch. Der Ferritinwert überschritt den messbaren Cut-Off von 40.000 µg/L. Die humorale Immunstatus-Analyse bestätigte die massive Zytokinaktivität, insbesondere sIL-2R-alpha.

Somit erfüllte die Patientin 7 der 8 HLH-2004-Diagnosekriterien mit einer HScore-Probability von über 98 % für eine Hämophagozytische Lymphohistiozytose (HLH). Trotz sofortiger Hochdosis-Cortison- und i. v.-Immunglobulin-Therapie verstarb die Patientin leider. Die histologische Analyse des Knochenmarks bestätigte eine sekundäre HLH nach *Mycoplasma pneumoniae* Infektion.

Die sekundäre HLH ist ein seltenes Hyperinflammationssyndrom, das bei 1,6 % der Intensivpatient*innen auftritt – jedoch meist unerkannt bleibt. Der Verlauf ähnelt einer schweren Sepsis, erfordert jedoch konsequente Immunsuppression. Anhaltendes Fieber, Bizytopenie und Splenomegalie sind wichtige Indizien. Ferritin ist ein bedeutender Screening-Marker. Der Fall unterstreicht die Wichtigkeit der HLH als Differenzialdiagnose bei kritisch kranken Intensivpatient*innen.

F09

Klassische Tuberkulose …

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Patientencharakteristik, Anamnese und Symptome: Ein 45-jähriger Patient aus Aserbaidschan kommt wegen seit einem Monat zunehmender Halsschmerzen. Bei V. a. Peritonsillarabszess wurde eine CT Hals/Thorax veranlasst, wobei sich teils unscharf begrenzte noduläre Verdichtungen im rechten Oberlappen zeigten. Wegen Verdacht auf Tuberkulose erfolgte der Transfer an unsere Abteilung.

Diagnostik und Diagnose: Vorliegend ist bei Zuweisung bereits die Histologie der rechten Tonsillenloge: i. e. L Ulcus, keine Malignität. Im Sputum sind PCR und die Kultur auf Mykobakterium Tuberculosis positiv. Zudem findet sich der HIV-Test positiv. In der CT Abdomen bei ausgeprägter Leberfunktionsstörung zeigt sich eine obstruierende Raumforderung im Pankreaskopf. Ein neu auftretender derber subcutaner Knoten in der Thoraxwand wird sonographiegezielt punktiert, histologisch zeigt sich ein High-grade-B-Zell-Lymphom.

Differentialdiagnostik: Die multilokulären Läsionen lassen an eine disseminierte TBC oder ein hämato-onkologisches Geschehen denken, hier liegen beide Entitäten vor. Zudem findet sich die bei beiden Problemen häufige Komorbidität HIV.

Therapie: Zunächst erfolgt die Therapie der TBC nach Leitline. Es zeigt sich eine Resistenz auf Isoniacid, Ethambutol und Streptomycin, die Therapie wird auf Levofloxacin, Linezolid, Pyrazinamid, Clofazimin und Bedaquilin umgestellt.

Bezüglich der HIV-Infektion wird Tenofovir/Emtricitabin sowie Raltegravir etabliert.

Wegen mechanischem Ikterus wird das Lymphom zunächst mit Dexamethason therapiert. Eine volldosierte Therapie nach CHOP-Schema (Cyclophospamid, Doxorubicin, Vincristin, Prednisolon) kann aufgrund der stark reduzierten Gesamtsituation nicht verabreicht werden. Ein dosisreduziertes COP-Schema (ohne Doxorubicin) wird angewendet. Es kommt klinisch zu weiterer Verschlechterung, insbesondere im Rachen mit partieller Kiefersperre.

Bei eingeschränkter Medikamentencompliance und wechselndem Therapiewillen des Patienten findet nach Einlagen negativer Sputa ein Therapierückzug statt. Der Patient fährt im palliativen Setting in seine Heimat.

F10

Das Zebra in der westlichen Welt

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Pneumologie, Landeskrankenhaus Hochzirl – Natters, Standort Natters

Ein 24-jähriger gebürtiger Somalier wird akut im Schockraum vorstellig nach zweimaligem Grand mal Anfall mit Status epilepticus. Im MRT zeigt sich eine zum EEG passende KM-Anreicherung rechts parietal, diese wird differentialdiagnostisch als mögliche postentzündliche Läsion gewertet. In der thorakalen Bildgebung zeigen sich eine unspezifische kleine Verdichtung im apikalen Lungenoberlappen rechts sowie ein verdicktes

Omentum majus und mäßiger Aszites. Nachdem in Liquor- und Aszitespunktion sowie im Sputum kein Nachweis einer Tuberkulose gelingt, wird bei nachgewiesenem Klebsiella pneumonie eine Antibiose begonnen. Infolge zeigt sich laborchemisch keine Besserung und in der CT-Verlaufskontrolle der Herd im rechten Oberlappen progredient. Differentialdiagnostische Überlegungen schlossen Infektion, granulomatöse Entzündungen bis Tumorgeschehen mit metastatischer Absiedelung zerebral ein. Schließlich erfolgt die diagnostische Navigationsgestützte bronchoskopische Probenentnahme aus dem Oberlappen. Dieser Fall zeigt nicht nur die Notwendigkeit einer Gewebsbiopsie zur Diagnosesicherung, sondern auch die der Beharrlichkeit, auch die im Diagnoseprozess bereits verlassenen Fährten wiederaufzunehmen.

F11

Der als Krebs verkleidete Wurm: Manchmal sind's doch Läuse und Flöhe

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Patientencharakteristik, Anamnese und Symptome: Eine 61-jährige Patientin wurde wegen Mikrohämaturie vorgestellt. Se berichtete über rezidivierende Schwindelattacken, Übelkeit, Blutdruckschwankungen sowie Belastungsdyspnoe.

Diagnostik und Diagnose: Eine weiterführende CT-Untersuchung zeigte eine suspekte Raumforderung (RF) in der Leber sowie eine hochsuspekte RF im rechten Unterlappen (RUL), eine rechts-hiläre und mediastinale (Region 7) Lymphadenopathie und multiple kleinere suspekte Rundherde in beiden Lungen. Es erfolgte eine CT gezielte Biopsie der Leber RF, welche eine Echinokokkose ergab. Es wurde eine Therapie mit Albendazol eingeleitet. Auf Grund progredienter Dyspnoe erfolgte im Anschluss eine Bronchoskopie mit EBUS-TBNA der Lymphknoten. Diese ergab ein BRAF mutiertes Adenokarzinom der Lunge mit N2 Befall in der Region 7. Aufgrund der multiplen pulmonalen Rundherde wurde ein klinisches Stadium cT1c cN2 cM1a angenommen.

Differentialdiagnostik: In der initialen Betrachtung wurden die pulmonalen Rundherde als potenzielle Metastasen gewerte, da die Radiomorphologie untypisch für pulmonale Echinokokkose-Zysten war und ein Ansprechen auf die Albendazol-Therapie ausblieb. Sonst könnte auch ein NSCLC im potenziell kurativ therapierbaren Stadium III vorliegen.

Therapie: Es wurde eine systemische Therapie mittel Proteinkinaseinhibitoren (Dabrafenib/Trametinib) eingeleitet, die zu einem Ansprechen des Tumors und der Lymphknoten führte. Im nächsten Schritt wurde die Echinokokkus Zyste in der Leber vollständig reseziert. Nach Fortführung der Dabrafenib/Trametinib Therapie zeigte sich ein paradoxes Ansprechen mit weiterer Verkleinerung des Primärtumors im RUL und der Lymphknoten, jedoch mit Progression der sonstigen pulmonalen Rundherde. Zur weiteren Diagnostik erfolgte eine VATS-Biopsie von Rundherden des linken Unter- und Oberlappens welche granulomatöse, histiozytär demarkierte zentrale zystische Nekrosen passend Echinokokkus-Zysten ergab. Es erfolgte anschließend eine Lobektomie des rechten Unterlappens mit vollständiger Lymphadenektomie. Der histologische Befund zeigte ein komplettes pathologisches Ansprechen des Tumors und der Lymphknoten.

Schlussfolgerung: Bei initialem Verdacht auf NSCLC im Stadium IV erfolgte eine zielgerichtete systemische Therapie. Bei diskordantem Ansprechen erwiesen sich die vermeintlich pulmonalen Metastasen als Echinokokkose-Zysten. Erfreulicherweise zeigte sich ein komplettes pathologisches Ansprechen auf die systemische Therapie.

F12

Ein schwarzes Loch in der Lunge: Die Kaverne mit verborgener Komplexität

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Patientencharakteristik, Anamnese und Symptome: Ein 68-jähriger männlicher Patient mit neu diagnostiziertem Hodgkin-Lymphom (Stadium IVB) wird unserer pneumologischen Abteilung zur Abklärung einer unter onkologischer Therapie neu aufgetretenen pulmonalen Kaverne mit ausgeprägter B-Symptomatik und Husten zugewiesen.

Diagnostik und Diagnose: Eine umfassende Diagnostik inklusive flexibler Bronchoskopie mit bronchioalveolärer Lavage und onkologischem Restaging mittels FDG-PET/CT wird prompt in die Wege geleitet. Bei entsprechendem Erreger-

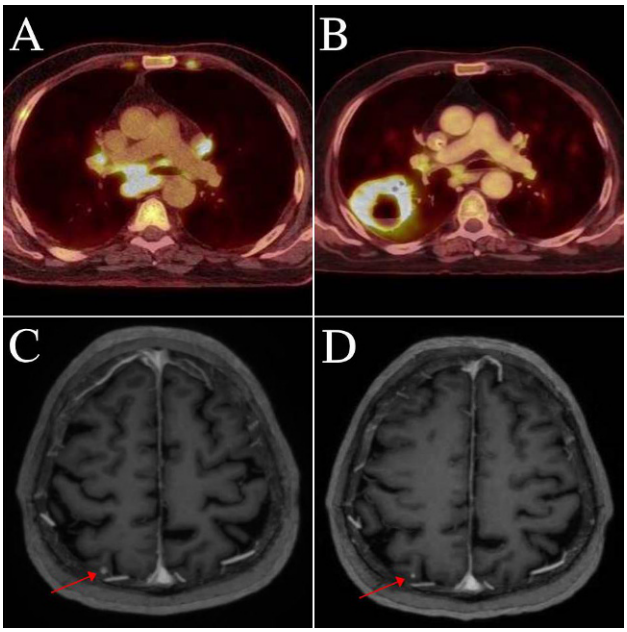

Abb. 1 | F12 A und B (FDG-PET bei Diagnosestellung des Hodgkin-Lymphoms und 4 Monate später): Entwicklung einer pulmonalen Kaverne mit entzündlichen Begleitläsionen nach onkologischer Therapieeinleitung. C und D (kraniales MRT bei Diagnosestellung der Nokardiose und 4 Wochen später): Regredienz einer zerebralen Läsion nach antiinfektiöser Therapieeinleitung

nachweis in den bronchoskopisch gewonnen Kulturen, regredienter Lymphomerkrankung und neuen entzündlich-kavernösen pulmonalen Läsionen (Bilder A und B) kann schließlich eine Ko-infektion mit Mycobacterium tuberculosis und Nocardia abscessus diagnostiziert werden. Zusätzlich besteht der hochgradige Verdacht einer zerebralen Nokardiose bei suspekten supra- und infratentoriellen Läsionen in einer kranialen MRT (Bild C).

Therapie: In multidisziplinärer Absprache wird die onkologische Therapie des Patienten pausiert und neben einer tuberkulostatischen Standardtherapie eine empirische intravenöse Doppelantibiose bei suszipierter schwerer Nokardiose mit zerebralem Befall eingeleitet. Regrediente Läsionen in einer kurzfristig durchgeführten kranialen Verlaufsbildgebung erhärten jene Verdachtsdiagnose (Bild D).

Etwa acht Monate nach Initiation der antiinfektiösen Therapie zeigt sich bildgebend kein Nachweis suspekter intrakranieller Läsionen und eine deutliche thorakale Befundregredienz.

F13

Lungenzysten: Was ist denn schon normal?

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Patientencharakteristik, Anamnese, Symptome: Die Vorstellung der 21-jährigen Patientin erfolgte zur Abklärung CT morphologisch nachgewiesener intrapulmonaler, teils flüssigkeitsgefüllter zystischer Veränderungen im rechten Unterlappen. Dabei handelte es sich um einen Zufallsbefund im Rahmen der Diagnostik eines Hodgkin Lymphoms submandibulär links. Die Patientin präsentierte sich asymptomatisch, rezidivierende Atemwegsinfekte oder Hämoptysen wurden verneint.

Diagnostik und Diagnose: Zur weiteren Diagnostik wurde ein neuerliches Angio-CT-Thorax durchgeführt. Dabei gelangen die vorbeschriebenen zystischen Veränderungen im rechten UL als Ausdruck eines intrapulmonalen Sequesters mit kaliberkräftiger Verbindung über das rechte Zwerchfell in den Bauchraum zum Truncus coeliacus zur Darstellung. Drainiert wurde der Sequester über die Lungenvenen, wobei eine Verbindung zur rechten Arteria pulmonalis besteht. Darüber hinaus zeigte sich zusätzlich eine anomale Gefäßverbindung zwischen dem Truncus Brachiocephalicus und dem linken thorakalen Gefäßsystem. Nach interdisziplinärer Fallbesprechung wurde die Indikation zur chirurgischen Sanierung gestellt. Präoperativ erfolgte zum Ausschluss kongenitaler Pathologien eine kardiologische Abklärung sowie eine Lungenfunktion (FEV1 94 % des Sollwerts, FEV1/FVC 94 % und einer TLC von 107 % des Sollwertes im Normbereich). Ein funktioneller Shunt wurde mit 604 pO2 ausgeschlossen.

Differentialdiagnostik: Bronchogene Zysten, kongenitale zystische Malformationen, non-CF Bronchiektasien

Therapie: Um das Auftreten chronisch-rezidivierender pulmonaler Infekte sowie die Entwicklung einer pulmonalen Hypertension zu verhindern, wurde eine VATS-UL-Lobektomie rechts vorgenommen. Zur Verminderung des Blutungsrisikos und Vermeidung der postoperativen Entstehung eines arteriellen Blindsacks wurde zunächst mittels interventioneller Angiografie ein Coiling der zum Sequester ziehenden aberranten Arterie aus dem Truncus Coeliacus durchgeführt. Postoperativ entwickelte die Patientin einen Chylothorax. Nach erfolgreicher postoperativer Behandlung durch konservative Maßnahmen, konnte die Patientin jedoch ohne weitere Komplikationen in gutem Allgemeinzustand entlassen werden.

F14

Verdreht – die Lunge steht Kopf

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Patientencharakteristik, Anamnese, Symptome: Wir berichten von einem 56 jährigen männlichen Patienten mit plötzlich einsetzenden, spontanen starken Flankenschmerzen links ohne nennenswerte Vorerkrankungen.

Diagnostik und Diagnose: Bei initial klinischem Verdacht auf Nierenkolik wurde im auswärtigen Krankenhaus zunächst ein CT Abdomen durchgeführt wobei jedoch Nierensteine ausgeschlossen werden konnten. Als einziger pathologischer Befund wurde in den mitabgebildeten Lungenabschnitten eine unklare Struktur im costophrensichen Winkel links diagnostiziert und der Verdacht auf V. a. Lungentorsion geäußert. Diese Diagnose ist – ohne vorangehende Intervention, Operation oder Erkrankung – extrem selten und erschien bei sehr kleinem Ausmaß unwahrscheinlich als Ursache für die therapierefraktären massiven Schmerzen des Patienten. Diffentialdiagnostisch konnte radiologisch auch eine Zwerchfellhernie mit Inkarzeration nicht ausgeschlossen werden. Der Patient wurde daher noch nachts akut übernommen und thorakoskopiert.

Therapie: Intraoperativ zeigte sich überraschenderweise der kaudale Anteil der Lingula troquiert ohne weitere intrathorakale Auffälligkeiten. Offenbar handelte es sich hier um eine spontane Lingulatorsion. Der infarzierte Parenchymteil konnte komplikationslos mittels Keilresektion entfernt werden.

Lungentorsionen können als Komplikation nach Operationen oder Trauma, im Rahmen von Pneumothoraces, Erguss oder Atelektasen der Lunge, aber auch spontan auftreten[1]. Am häufigsten ist der Mittellappen betroffen [2]. Torsionen der Lingula hingegen sind sehr selten und wurden nach Transplantation oder apikaler Trisegmentektomie berichtet [3, 4]. Eine spontane Torsion, wie hier beschrieben, ist jedoch äußerst selten und nur in wenigen Fallberichten publiziert [5].

In unserem Fall klagte der Patient postoperativ zunächst weiterhin über starke Schmerzen. Bei einer erneuten Durchuntersuchung insb. Im Hinblick auf urologische Ursachen zeigten sich alle Befunde unauffällig. Die Schmerzen waren letztlich lediglich der Drainage geschuldet und sistierten nach Entfernung der Drainage.

Auch im endgültigen histologischen Befund bestätigte sich ein tumorfreies Lungengewebe mit ausgedehnten frischen Einblutungen im Rahmen einer Torsion und Infarzierung der Lingulaspitze.

Literaturhinweise

1. Jalota Sahota R, Lung Torsion AF. StatPearls. Treasure Island (FL): StatPearls Publishing Copyright © 2024. Statpearls Publ Llc. 2024.
2. Wong PS, Goldstraw P. Pulmonary torsion: a questionnaire survey and a survey of the literature. Ann Thorac Surg. 1992;54(2):286–8.

3. Eguchi T, Kato K, Shiina T, Kondo R, Yoshida K, Amano J. Pulmonary torsion of the lingula following a segmentectomy of the left upper division. Gen Thorac Cardiovasc Surg. 2008;56(10):505–8.
4. Liu D, Nagle SK, Kleedehn MG. Left upper lobe and lingula torsion after transplantation of single lung with complete major and minor fissures: A case report. Clin Imaging. 2022;84:79–83.
5. Kanayama M, Osaki T, Nishizawa N, Nakagawa M, So T, Kodate M. Idiopathic spontaneous pulmonary torsion of the lingula: A case report. Int J Surg Case Rep. 2017;37:205–7.

F15

APA Eilmeldung: 90-60-90

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Die 63-jährige Patientin wurde auf Grund von zunehmender Dyspnoe und Leistungseinschränkung im Jahr 2000 mit einer primären pulmonalen Hypertension mit einem riesigen Pulmonalarterienaneurysma diagnostiziert. CT-morphologisch fand sich eine stark distendierte Pulmonalarterie mit einem maximalen Durchmesser des Truncus pulmonalis von **61 mm** (axial). Nach Ausschöpfen aller konservativen medikamentösen Therapien zeigte sich trotz Remodulin-Pumpe ein systolisch pulmonalarterieller Druck von **92 mmHg**, weshalb die Patientin für eine Lungentransplantation evaluiert wurde. Nach Abschluss aller Evaluierungsuntersuchungen und Bestätigung des Monoorganversagens wurde die Patientin schließlich mit erhöhter Dringlichkeit auf die Eurotransplant-Warteliste gesetzt (Lung Allocation Score 41.69).

Nach knapp **90 Tagen** Wartezeit erhielt die Patientin ein passendes Organangebot. Bei Organentnahme wurde der gesamte Hauptstamm der Pulmonalarterie inklusive Pulmonalklappe explantiert, und die Spenderlunge bei guter Organqualität akzeptiert und die Lungentransplantation eingeleitet.

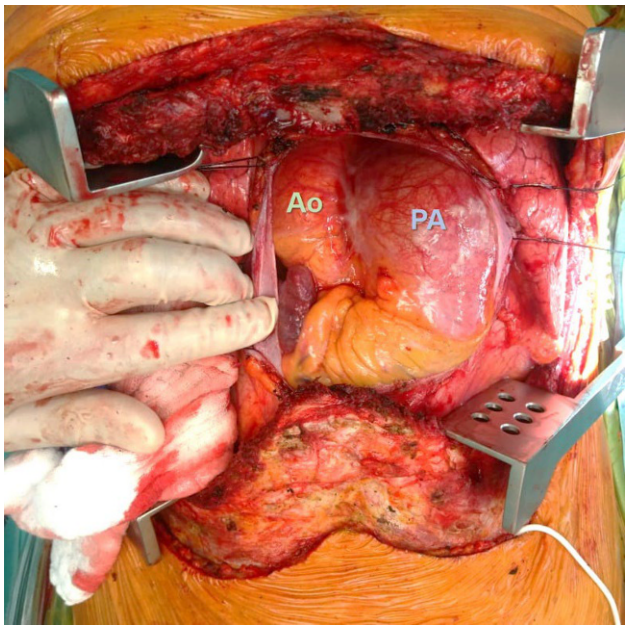

Fig. 1 | F15 intraoperativer Situs (*Ao* Aorta, *PA* Pulmonalarterie)

Vor Einleiten der Narkose und Doppellumenintubation erhielt die Patientin in wachem Zustand das arterielle Monitoring, sowie den zentralvenösen und Pulmonalarterien-Katheter. Die sequentielle bilaterale Lungentransplantation wurde über eine Clamshell-Inzision an der Herz-Lungen-Maschine am schlagenden Herzen durchgeführt. Der Truncus pulmonalis mit der rechten Pulmonalarterie des Spenders wurde dabei an die Pulmonalklappe der Empfängerin anastomosiert.

Der weitere perioperative Verlauf gestaltete sich erfreulich. Die pulmonalarteriellen Drücke normalisierten sich direkt nach Implantation, die Patientin konnte in stabilem Zustand ohne extrakorporale Kreislaufunterstützung auf die Intensivstation gebracht und am 4. Tag nach Transplantation extubiert werden.

WISSENSCHAFTLICHE POSTER SCIENTIFIC POSTERS

ÖGP Abstracts Basic Sciences

P01

LuftiBus in the school (LUIS): lung function classes and respiratory symptoms in schoolchildren

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[6]Medical University of Graz, Institute for Medical Informatics, Statistics and Documentation, Graz, Austria

Background: **LUIS Study Group Members**: Alexander Möller, Jakob Usemann, Philipp Latzin, Florian Singer, Johanna Kurz, Claudia E. Kuehni, Rebeca Mozun, Cristina Ardura-Garcia, Myrofora Goutaki, Eva S. L. Pedersen, Maja Jurca, Maria Christina Mallet, Kees de Hoogh Diagnostic labels such as asthma and upper airway cough may be inaccurate to identify children at risk of recurrent respiratory symptoms. The unbiased combination of physiological biomarkers and clinical variables may serve as novel method to identify unselected children at risk of respiratory symptoms irrespective of diagnostic labels.

Methods: From 2013 to 2016, we performed a cross-sectional study in a cohort of 3883 unselected schoolchildren aged 6–17 years living in Zurich, Switzerland. Participants filled questionnaires and performed fractional exhaled nitric oxide (FeNO) and spirometry measurements. Following descriptive statistics, we applied latent classes growth analysis (LCGA) to preselected

indicator variables: FEV1, FEV1/FVC, log FeNO, sex, age, and BMI. Classes were then linked to recurrent cough without cold, current wheeze, and asthma medication use.

Results: In total, 3883 schoolchildren, 1950 girls, were included. Age mean (SD) was 12.0 (2.69) years. FEV1 was –0.6 (0.9) z-score, FEV1/FVC was –0.3 (0.98) z-score, FeNO median (IQR) was 12.6 ppb (7.3–22.0). 1024 (25.4 %) participants reported cough without cold, 317 (7.9 %) current wheeze, and 566 (15.5 %) took asthma medication. Preliminary LCGA and model diagnostics suggest that two latent classes can be derived from the indicator variables. Classes were mainly driven by FEV1. 3836 (98.8 %) of children had high probability belonging to class I and 47 (1.2 %) to class II. Children in class II were at increased risk (odds ratio, OR) experiencing cough without cold, OR (95 %CI) 2.1 (1.08–3.97), but not current wheeze or asthma medication use.

Conclusions: LCGA is able to integrate physiological biomarkers and clinical variables and may serve as novel method to identify individuals at increased risk of respiratory symptoms in unselected schoolchildren.

P02

Gender differences in outpatient pulmonary rehabilitation

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Background: The effectiveness of pulmonary rehabilitation is based on broad evidence. The content of outpatient pulmonary rehabilitation is not just limited to exercise therapy, but also addresses all aspects of the patient's everyday functioning with a multidisciplinary approach equal for men and women. The rehabilitation program includes endurance and strength training, respiratory muscle training and education in psychology, nutrition, physiotherapy and exercise therapy.

Methods: 49 patients (21 men, 28 women) who took part in outpatient pulmonary rehabilitation phase 2 at Reha Wels in 2023 were evaluated. At the beginning and at the end of the 6-week rehabilitation period, lung function analyses, determination of respiratory muscle strength, spiroergometry, 6-minute walking test (6 MWT), determination of quality of life by CRQ (Chronic Respiratory Disease Questionnaire) and CAT (COPD Assessment Test) and determination of anthropometric parameters were performed.

Results: The results show that patients improve in all measured performance parameters. There is a better improvement in 6 MWT (+1.8 % vs. +6.9 %) and maximal power (W) (+4.1 % vs. +4.6 %) for women, while men improve better in VO2max (+3.6 vs. –0.2 %). The CRQ showed a better improvement in dyspnea (+18.6 % vs. +7.5 %), fatigue (+9.9 % vs. +3.2 %) and disease mastery (+8.0 % vs. +3.6 %) for men. Emotions, however, were influenced more positively in women (+2.9 % vs. +8.1 %). The CAT also improved significantly for men (–17.0 %), while hardly any changes were recorded for women (–1.2 %).

Conclusions: All patients benefit from outpatient rehabilitation. Although there are improvements for both genders in all parameters, women achieve better results in terms of performance compared to men. However, the quality of life seems to improve more for men than for women. Emotional status, on the other hand, also improved significantly for women. It may be important to provide further treatment for women's quality of life.

P03

Critical Role of BKCa Channels in the Pathophysiology of Acute Lung Injury

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Background: Ion channels in the lung are crucial for cellular homeostasis, fluid regulation, inflammation control, and structural maintenance across various tissues. Large conductance calcium-activated potassium channels (BKCa) are particularly notable for their potential to influence physiological responses, especially under disease conditions. Acute lung injury (ALI), characterized by a compromised alveolar-capillary barrier due to infection or inhalation of harmful substances, can lead to acute respiratory failure. This study investigates the role of BKCa channels in the context of ALI.

Methods: BKCa knockout (KO) and wild-type (WT) mice were treated with lipopolysaccharide (LPS) to induce lung injury. Functional read-outs, including lung function measurements, lung injury scores, and flow cytometry of bronchoalveolar lavage fluid (BALF) and lung tissue, were performed to analyze changes three days post-LPS treatment.

Results: BKCa KO mice exhibited compromised lung function, as evidenced by increased resistance and decreased compliance, along with elevated myeloperoxidase activity in response to LPS insult compared to WT mice. Additionally, BKCa KO mice displayed higher lung injury scores, indicating more severe histopathological damage than WT mice. Histological staining revealed increased edema, hemorrhage, inflammatory cell infiltration, and alveolar wall thickening in BKCa KO mice. Analysis of BALF showed higher protein levels in BKCa KO mice following LPS induction compared to WT mice. Despite the heightened inflammation observed in BKCa KO mice, their inflammatory profile and cell composition were similar to those of WT counterparts.

Conclusions: Our study underscores the critical role of BKCa channels in maintaining pulmonary homeostasis and demonstrates that their absence significantly exacerbates lung injury pathology. The findings suggest that targeting BKCa channels could be a promising therapeutic strategy for mitigating lung injury, especially in patients suffering from respiratory infections. Further research into BKCa channels may lead to novel treatments that improve outcomes in acute respiratory failure and other related pulmonary conditions.

P04

Elucidating biglycans relevance in the pathobiology of pulmonary arterial hypertension

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Background: Pulmonary arterial hypertension (PAH) is characterized by increased mean pulmo-arterial blood pressure and pulmonary vascular resistance. These hemodynamic changes are accompanied by vascular remodeling and deposition of extracellular matrix in the pulmonary arteries. Our aim is to identify novel intervention targets that could halt and reverse these processes. Biglycan (BGN), a small proteoglycan in the extracellular matrix, has been described as a driver of cancer and atherosclerosis, due to its immune modulation. In this project we aim to elucidate the role of BGNs in the pathobiology of PAH.

Methods: Our publicly available single cell RNA dataset, generated from pulmonary arteries from healthy and PAH lungs, was used to investigate BGN in PAH (GSE228644). BGN protein levels were assessed using western blot. In vitro BGN abundance was modified in isolated human pulmonary arterial smooth muscle cells (PASMC) and various assays were performed. Human monocyte derived macrophages were stimulated using the supernatant of modified PASMCs and their cytokine profile was analyzed.

Results: We have shown that on transcriptional and protein level BGN is more abundant in PAH, especially in the PASMCs. Depletion of BGN in PASMCs from healthy and PAH donors via siRNA reduced proliferation, while only promoting apoptosis in PAH. In addition, BGN depletion reduced the recruitment of the contractile machinery in both healthy and PAH PASMCs. In contrast, BGN overexpression in healthy PASMCs resulted in increased proliferation and matrix synthesis. Furthermore, BGN was predicted, based on single cell data, to interact with macrophages via TLRs and in vitro treatment with conditioned media of modified PASMCs confirmed this communication-axis.

Conclusions: Overall our findings confirm BGNs role as a mediator of intercellular cross-talk and modulator of PASMC physiology, both being crucial elements of PAH pathobiology. Nevertheless, further investigations are needed to understand how BGN mediates these processes.

P05

Functional Characterization of Novel $K_v1.5$ Variants in PAH

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Background: Pulmonary arterial hypertension (PAH) is a severe condition characterised by increased pulmonary vascular resistance due to vasoconstriction and vascular remodelling. K^+ channels are vital for maintaining the function of the small pulmonary arteries. The voltage dependent K^+ channel $K_v1.5$ has been linked to PAH. A targeted screening in our international PAH cohort identified several previously uncharacterized, variants of the *KCNA5* gene, coding for $K_v1.5$.

Methods: Six of the identified $K_v1.5$ channel mutants were established and expressed in two model systems (Xenopus laevis oocytes and in human embryonic kidney cells) and their electrophysiological properties were analysed by means of patch clamping.

Results: Our findings indicate that among the six mutant channels analysed, the missense variant c.1303G>A p.Gly435Arg (rs1862765898) in exon 1 of 1 in the *KCNA5* gene exhibited a significant reduction of 87 ± 1.3 % in whole-cell current compared to the wild-type channel. The variant was identified in a female idiopathic PAH patient and was absent in > 60,000 controls (GnomAD v.2.1.1). This mutant was also characterized by slower activation and inactivation kinetics. The possible repulsive effect of the positive arginine formed on the voltage sensor may modulate channel gating. Follow-up studies involving co-expression of the mutant with the wild-type channel in varying ratios revealed that while the current amplitude of the heterotetramers remained unchanged, the inactivation velocity was reduced. The new functional evidence allowed a re-classification of the variant from variant of uncertain significance (class III) to a likely pathogenic variant (class IV).

Conclusions: Our study provides the first evidence for a new functionally important variant of the *KCNA5* gene causing strong inactivation of the $K_v1.5$ channel and thus, potentially contributing to the pathophysiology of PAH. Clinicians should be aware of this mutation's impact on channel function, as it may have implications for the diagnosis of PAH.

P06

Datenauswertung 2023 der Raucher*-innenberatung und Raucher*innenentwöhnung (Minimal Data Sets) der PV ZAR Graz, ambulante Rehabilitation der Pensionsversicherung

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Background: Im Rahmen einer dreiwöchigen bis mehrmonatigen ambulanten Rehabilitation haben die Patient*innen im Zentrum für ambulante Rehabilitation (PV ZAR Graz) der Pensionsversicherung die Möglichkeit, eine Raucher*innenberatung bzw. Raucher*innenentwöhnung in Anspruch zu nehmen.

Methods: Es erfolgt die Gliederung in eine Raucher*-innenberatung, welche aus einem 25minütigen ärztlichen Vortrag und einem 25minütigen psychologischen Vortrag besteht, und einer Raucher*innenentwöhnung, welche aus einem 50minütigen ärztlichen Vortrag und zwei 50minütigen psychologischen Vorträgen besteht.

Es gibt drei Messzeitpunkte, wobei der erste Messzeitpunkt (MZP 1) im Rahmen des Raucher*innenberatungsgesprächs erfolgt und eine adaptierte Version des Minimal Data Sets (2010) und einen Fragebogen zum persönlichen Rauchnutzen (2013) beinhaltet.

Der zweite Messzeitpunkt (MZP 2) findet im Zuge des zweiten Teils der Raucher*innenentwöhnungsgruppe statt.

Sechs Monate nach dem Rehabilitationsaufenthalt (Messzeitpunkt 3) wurden die Teilnehmenden der Raucher*-innenentwöhnungsgruppen telefonisch kontaktiert und zu ihrem Rauchverhalten befragt.

Results: Insgesamt nahmen 174 Patient*innen am Raucher*-innenentwöhnungsprogramm teil; Zum Messzeitpunkt 3 wurden bis 17.06.2024 32 Patient*innen telefonisch erreicht. 9 Patient*innen gaben an, rauchfrei zu sein. 23 waren weiterhin Raucher*innen. 13 davon gaben an, weniger als vor der Entwöhnung zu rauchen.

Conclusions: Im Zuge der Anamnese wurde unter anderem der persönliche Rauchnutzen erfasst ($n=157$). Durchschnittlich zeigten sich die höchsten Ausprägungen in Bezug auf den Umgang mit stressreichen Situationen ($M=9{,}31$, $SD=3{,}61$) und hinsichtlich Genuss/Erholung ($M=9{,}50$, $SD=2{,}92$). Dementsprechend könnten die Raucher*innen besonders durch das Erlernen von Entspannungstechniken und durch gezieltes Genusstraining profitieren.

Die Mehrheit der Patient*innen (79 %) nannte die Gesundheit als Grund für einen Rauchstopp (Minimal Data Set 2010).

Da zudem laut Erhebung (Fagerström-Test für Nikotinabhängigkeit) bei einem Großteil der Teilnehmenden (70 %) eine sehr geringe oder geringe körperliche Abhängigkeit bestand, wäre es empfehlenswert, die psychologischen Angebote auszubauen, inklusive psychologischer Einzelgespräche und das Erlernen von Entspannungstechniken.

P07

Unveiling the role of lung endothelial cell proliferation in the progression of pulmonary fibrosis

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Background: Progressive pulmonary fibrosis is a deadly lung disease characterized by excessive extracellular matrix deposition and uncontrolled tissue scarring. Patients suffer from restricted ventilation, insufficient gas exchange and a severe decline in lung function. The rapid destruction of the lung parenchyma is accompanied by a pronounced impairment of the vascular compartment. Reports describe a heterogeneous vascularization in the fibrotic lung, depending on the extent of fibrotic remodeling together with an imbalance of angiogenic mediators. Here, we propose that a disrupted ability of the endothelium to proliferate and thus to regenerate damaged pulmonary vasculature exacerbates the fibrogenic process.

Methods: Murine lungs have been harvested 3 and 14 days after bleomycin administration. Human transplant and donor lungs, isolated pulmonary arteries as well as murine lungs have been digested enzymatically and single cell suspensions have been analyzed based on flow cytometry.

Results: Endothelial cell proliferation was significantly increased 14 days after bleomycin administration in the murine lung. No changes were apparent yet at the early 3-day time point. Significantly lower percentages of $CD31^+$ endothelial cells were $Ki67^+$ in pulmonary arteries isolated from endstage fibrotic lungs as compared to donor arteries.

Conclusions: Our preliminary data suggest that endothelial cell proliferation could positively influence fibrosis resolution in the bleomycin-induced mouse model of lung fibrosis. On the contrary, an impaired proliferative capacity in the human disease may contribute to the progression of the disease. Performing detailed correlation analysis with human and murine lung function parameters and application of angiostatic mediators in the mice will unravel whether the inhibition of vascular proliferation advances/worsens the degree of parenchymal distortion.

P08

Modeling early Pseudomonas aeruginosa Infection Using Human Airway Organoids: The Role of Ciliary Function in Airway Epithelial Defense

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Background: Respiratory cilia play a crucial role in clearing pathogens from the airway, and understanding how *Pseudomonas aeruginosa* weakens their function is essential for developing effective treatments to enhance airway epithelial defense and hamper bacterial host cell invasion. In this work, we investigated the mechanisms by which *Pseudomonas aeruginosa* impairs respiratory cilia function and tested pharmacological interventions to restore cilia motility.

Methods: We used mucociliary differentiated human airway organoids expressing motile cilia on the apical side, to model the initial stage of *Pseudomonas aeruginosa* infection. We analyzed ciliary beating frequency by slow motion video recordings and quantified intra-organoid bacterial load. We incubated infected organoids with pharmacological compounds to modulate ciliary beating frequency, including Roflumilast, a selective phosphodiesterase-4 inhibitor used to treat COPD patients, and EHNA, a dynein inhibitor.

Results: We showed that infection leads to a significant downregulation of genes associated with cilia formation, structure and function. Electron microscopy confirmed ciliary structural damage and membrane disruption in infected organoids. We demonstrated that infection markedly slowed ciliary beating in organoids, with the bacterial-derived toxin Pyocyanin identified as one causative virulence factor. We observed that organoids treated with Roflumilast and Forskolin, an adenylyl cyclase activator, showed increased ciliary beat frequency and lower intracellular bacterial counts.

Conclusions: In summary, these findings emphasize the critical role of motile cilia in innate host defense against *Pseudomonas aeruginosa* mucosal infection and uncover a novel pathogen-derived pathway to enforce cellular invasion. Taken together, the data shown is implying that treatment strategies aimed at restoring ciliary beating might enhance epithelial defense, thereby reducing bacterial invasion. Collectively, we provide a reliable short-term infection model, representing a framework to evaluate the cellular and functional responses of the airway epithelium to challenge with respiratory pathogens and to test potential therapeutic strategies aimed at restoring ciliary function.

P09

The pleural proteome in lung transplant recipients and non-transplant patients

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Background: Pleural effusions occur frequently after lung transplantation (LTX) and often remain unclear despite thorough clinical workup. Further, they are associated with increased mortality after transplantation.

Methods: Pleural effusion supernatants were analyzed using LC mass spectrometry based proteomics. Analysis of protein abundancies was performed using linear mixed effects models.

Results: In total 81 pleural effusions were analyzed, 47 effusions were obtained from LTX recipients, 34 effusions from non-transplant patients. Using an in-depth clinical phenotyping approach with serum chemistry, pleural effusion chemistry, pleural effusion differential cell count, microbiological and histopathological results available, we were able to dissect relevant confounders of the pleural proteome. Kidney failure, trans-/exudate dichotomy, previous thoracic surgery and status post transplantation were found to be independent determinants of the pleural proteome composition. Utilizing linear mixed effects models, we identified a protein pattern unique to pleural effusions of LTX recipients with an upregulation of proteins linked to ECM deposition and a downregulation of mesothelial markers, adjusted for pleural effusion etiology, kidney failure and previous thoracic surgery.

Conclusions: For the first time, these data demonstrate the necessity of adjusting for kidney failure and previous thoracic surgery as confounder of pleural effusion proteome changes, independent of transudate/exudate classification. Our study suggests an active disease process implicated in the pathogenesis of LTX pleural effusions that involves a decrease in pleural mesothelial cells and an increase in activated pleural fibroblasts, potentially by mesothelial-to-mesenchymal transition.

P10

Suppression of P2RY2 reduces lung tumor metastasis in NSCLC

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Background: ATP activates purinergeric receptors P2X and P2Y, which are expressed on various cell types including immune cells, epithelial cells and fibroblasts. P2X receptors (1–7) are ion channels activated by ATP, while P2Y receptors (P2RY1/2/4/6/11/12/13/14) are G-protein-coupled receptors activated by ATP, ADP, UTP, or UDP. The role of P2Y2 receptor (P2RY2) in tumor cell growth has been demonstrated in numerous cancers. Yet, its role in NSCLC is not fully defined. In the current study, we aimed to decipher the role of P2RY2 in NSCLC.

Methods: RNAscope in situ hybridization technology was used to determin the expression of *P2RY2* in NSCLC adenocarcinoma patient samples. To explore the role of P2RY2 in NSCLC *in vivo*, we applied a lung metastases tumor model based on intravenous injection of lewis lung carcinoma cells in immunocompetent C57BL/6 mice. Tumor growth was evaluated in *P2ry2* -/- mice or mice treated with P2RY2 inhibitor and compared with control animals. Various methods were used to analyze the contribution of immune cells on tumor growth in these models including multicolor flow cytometry, immunofluorescence and multiplex immunoassays.

Results: *P2RY2* is highly expressed in epithelial cells and macrophages of NSCLC patients but not in healthy tissues at RNA level. Results from a pilot experiment with 11 adenocarcinoma patients suggest that P2RY2 is associated with overall survival and correlates directly with tumor stages. Knockout or blocking of P2RY2 significantly inhibits NSCLC tumor growth in a syngenic mouse model. Importantly, suppressing P2RY2 dramaticallyreduces the number of M2 macrophages in an immunocompetent NSCLC mouse model.

Conclusions: Our results from patients and *in vivo* models highlight the importance of P2RY2 signaling in the development of NSCLC and open new avenues for novel immunotherapeutic options based on targeting P2RY2 on M2 macrophages.

P11

Dyspnoe nach COVID-19 bei Beschäftigten im Gesundheitswesen

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Background: Im privaten Gesundheitswesen in Deutschland haben etwa 270.000 Beschäftigte eine Berufskrankheit wegen COVID-19. Dyspnoe ist nicht nur ein typisches Symptom bei COVID-19 sondern auch bei Post-COVID. Die Häufigkeit von Dyspnoe mehr als drei Monate nach COVID-19 und Risikofaktoren wurden für Beschäftigte im Gesundheitswesen untersucht.

Methods: Daten von zwei Kollektiven wurden zur Beantwortung der Fragestellung ausgewertet. Für eine Befragungsstudie wurden 4000 Beschäftigte mit COVID-19 im Jahr 2020 vier Mal zwischen 2021 und 2023 zu Symptomen und Risikofaktoren befragt. Versicherte mit möglichen Langzeitfolgen werden im Post-COVID-Check der Unfallkrankenhäuser untersucht und die Befunde im COVID-Register systematisch erfasst.

Results: An der vierten Befragung haben 1088 Versichert teilgenommen. Das sind 25,2 % der ursprünglich angeschriebenen Versicherten. Über belastungsabhängige Dyspnoe nach COVID-19 berichteten 42 %. Neben Alter und Gewicht waren Atemwegserkrankungen (OR 1,9; 95 %CI 1,3–2,7) und psychische Erkrankungen (OR 1,7; 95 %CI 1,4–2,6) Risikofaktoren. Im Post-COVID-Register stehen 800 Datensätze zur Auswertung zur Verfügung. Bei 51 % bestand eine Belastungsdyspnoe und bei 42 % der Betroffen war COVID-19 die wahrscheinliche Ursache oder hatte zur Verstärkung der Symptome geführt.

Conclusions: Dyspnoe ist ein häufiges Symptom nach COVID-19 bei Versicherten mit einer Berufskrankheit wegen COVID-19. Eine sorgfältige Exploration anderer Ursachen erscheint jedoch notwendig.

P12

Pulmonary Vasodilation Induced by Red Wine: The Critical Role of Endothelial Nitric Oxide

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Background: Red wine consumption is supposed to improve endothelial function and enhance in-vivo vascular function. Red wine contains bioactive compounds, such as resveratrol, which have shown promise in improving cardiovascular health

by reducing inflammation and inhibiting platelet aggregation. However, studies on the effects of red wine and its constituents on pulmonary vessels are limited. The current study investigates the acute vasoactive properties of red wine on isolated pulmonary arteries of explanted human lungs and a rat model.

Methods: Freshly isolated intrapulmonary arteries were used in the wire myograph to assess the acute effect of red wine with and without alcohol on pulmonary vascular tone after pharmacologic pre-constriction. The selective bioactive substances caffeic acid (CA), gallic acid (GA), and cis- and trans-resveratrol were also evaluated for their vasodilatory properties. Pre-constriction was achieved by 300 nM of the thromboxane A2 receptor agonist U46619. The contribution of nitric oxide from the endothelium was investigated using the nitric oxide synthase inhibitor L-NAME.

Results: Red wines produced a rapid vasodilatory effect of 80 % that was sustained for the observed 60 min in the rat and 20–30 min in human vessels. This vasodilation was completely preserved in red wine without alcohol. Maximum vasodilation by cis-resveratrol, trans-resveratrol, caffeic acid, and gallic acid, were 79.5 ± 2.2 %, 89.3 ± 1.1 %, 0.78 ± 2.7 %, and 19.1 ± 7.3 %, respectively. The vasoactive effects of red wine were inhibited by the presence of L-NAME, delineating the specific effect of red wine to the pulmonary arterial endothelium.

Conclusions: The bioactive components of red wine promote pulmonary artery relaxation in an alcohol-independent manner, with the vasodilative effect largely attributed to nitric oxide from the endothelium. Further research is needed to understand how red wine affects endothelial function and its overall cardiovascular risks and benefits.

P13

Iron status and circulating iron-associated factors in COPD patients with and without severe pulmonary hypertension

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Background: Chronic obstructive pulmonary disease (COPD) is one of the leading global health challenges. Elevated mean pulmonary artery pressure (mPAP) and mild-to-moderate pulmonary hypertension (PH) are typical features of COPD. However, a subset of patients develops severe pre-capillary PH with a very poor prognosis. The factors driving different PH endotypes development in COPD remain unclear. Although COPD lungs exhibit a higher iron content compared to healthy controls, up to 50 % of patients develop systemic iron deficiency associated with more severe PH. The role of iron and iron-associated genes/proteins (ironome) in COPD-PH is not fully understood. We aimed to characterize iron status and iron-associated factors in COPD patients with and without severe PH.

Methods: Total iron and iron-associated factors were quantified in the blood from COPD patients with no PH (mPAP<20 mmHg), moderate PH (mPAP = 20–35 mmHg) and severe PH (mPAP>35 mmHg) with immunoturbidimetric assays ($n = 20$). Iron deposition and transferrin receptor-1 expression in the corresponding lung tissues were measured with the Perls' Prussian blue method and immunohistochemical staining, respectively. Microarray analysis was performed to assess the bronchial gene expression in donor and COPD lungs with moderate and severe PH ($n = 15$).

Results: Soluble transferrin receptor-1 in the blood was positively correlated with mPAP only in COPD with PH, and was not associated with lung tissue levels of the transferrin receptor-1. Number of iron-loaded cells was negatively correlated with mPAP in COPD with PH, but did not differ between severe and moderate PH. Two distinctive patterns of iron distribution were identified in COPD lungs with severe PH: those with and without intramural iron accumulation in small vessels. Bronchial genes involved in ferrous iron binding were downregulated in COPD with severe PH compared to controls, which was not observed in those with moderate PH.

Conclusions: Further studies are warranted to explore iron-associated mechanisms and endotypes of PH in COPD.

P14

The Role of Testosterone in Modulating Systemic Sclerosis Severity: A Preclinical Study

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Background: Systemic sclerosis (SSc) is a rare autoimmune disorder marked by abnormalities in connective tissue, fibrosis, vascular remodelling, and immune response across multiple organs. Intriguingly, SSc exhibits higher prevalence among females, with a female-to-male ratio exceeding 4:1 ratio, however males often manifest a more severe phenotype. This gender-based difference in disease manifestation indicates a potential influence of sex-related factors in SSc pathogenesis. Despite this, limited research is done on sexual dimorphism at hormonal level. Thus, our aim is to investigate this gender disparity in disease manifestation and explore the role of sex hormones in SSc.

Methods: We used a preclinical mouse model for SSc, the Fra-2 transgenic (Tg) model, to investigate the role of sex on disease phenotype. Initially, we compared male and female Fra-2 Tg mice to assess whether there is sex-differences in their phenotype. To explore the role of sex hormones in disease manifestation, we performed castration experiments to evaluate the impact of loss of sex hormones on disease progression.

Results: The initial comparison between male and female Fra-2 Tg mice showed a more severe phenotype in females compared to males. Surprisingly, ovariectomy did not exacerbate the disease in females, while orchiectomy worsened the phenotype in males. Further investigation with testosterone supplementation in orchiectomized Fra-2 Tg mice revealed a noticeable improvement in the disease phenotype. Testoste-

rone supplementation improved lung function, hemodynamic measurements, reduced fibrosis, reduced inflammation and immune response, and decreased vascular remodeling in the lungs. Interestingly, such phenotypic enhancement was absent in ovariectomized Fra-2 Tg mice following testosterone replacement. We are further investigating the role of testosterone in fibroblast activation and collagen deposition and the underlying cellular mechanisms.

Conclusions: These findings suggest a potential protective effect of testosterone and an association between testosterone levels and disease severity in male Fra-2 tg mice, highlighting the importance of sex hormones in SSc pathology.

P15

The lungs from an evolutionary perspective

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Background: If individuals vary their genetic makeup and, as a result, their characteristics as a result of a mutation, selection will result in different reproductive success. The postulate „**Evolution pushes physiology in the most economical direction possible**“ is therefore very likely from this point of view, because a living being that achieves the same performance with less food inevitably has a selective advantage.

Methods: Applied to the lungs, this extremum principle [see: The (human) respiratory rate at rest. J. Math. Biol.85, 60, 2022] with only few boundary conditions leads to:

Results: The pressure in all alveoli is the same (= alveolar pressure).

- The static compliance C of the lungs including the thorax reaches its maximum value within the FRC and is largely constant within this area, since a maximum value of C corresponds to an inflection point of the static pressure/volume curve.
- The resting respiratory rate can be calculated from the following 6 parameters: C, airway-resistance R, dead space volume, CO_2-production rate of the organism, end-tidal-CO_2 fraction, ratio I:E of inspiration to expiration time.
- Each subsection of the lung as well as the entire lung itself can be regarded as an RC-element and each has a fixed time constant R·C. From a physiological! point of view, the lung is therefore self-similar up to just before the alveoli. The two lungs therefore work synchronously and a lung lobe can therefore be transplanted into a child.
- The volume flow during quiet spontaneous inspiration is largely constant.
- Quiet expiration follows an exponential function with regard to expiratory volume and volume flow.

Conclusions: Analogous to the extremum principle of stationary action in natural sciences, the above postulate could therefore be used as an example for using extremum principles in (lung)physiology for fundamental cognitive processes with as few prerequisites as possible, so to say as an „ab initio method“.

ÖGP ABSTRACTS CLINICAL SCIENCES

P16

Associations between long-term exposure to air pollution and lung function in the LEAD general population study

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Background: Exposure to air pollution has been linked to an increased risk of abnormal lung development and impaired lung function. This study investigates cross-sectional associations of long-term exposure to particulate matter (PM_{10}) and nitrogen dioxide (NO_2) with lung function.

Methods: We used repeated measurements of lung function in the Austrian LEAD (Lung, hEart, sociAl, boDy) study, a general population cohort of children and adults (6–80 years). FEV_1 and FVC were measured at the baseline (t_0; 2011–2022) and follow-up (t_1; 2017-ongoing). Annual concentrations of PM_{10} and NO_2 from a chemical transport model (2015–2021) were assigned to individual's home addresses. Linear mixed-effects models with random participant intercepts were used, stratified by two age groups, and adjusted for lifestyle, sociodemographic, time-trend, and noise exposure.

Results: A total of 18,824 observations ($n_{t0} = 13,712$, $n_{t1} = 5112$) from participants aged 6–86 years (mean age at t_0: 41.0 years; 52.9 % female; mean $PM_{10} = 21\ \mu g/m^3$) were analysed. Among adults (≥ 25 years), higher PM_{10} exposure was associated with a reduced FVC of –25.7 ml (95 % confidence interval (CI: –44.0, –7.3) and FEV_1 of –16.4 ml (95 % CI: –31.0, –1.7) per interquartile range ($1.8\ \mu g/m^3$) increase. Effect estimates for NO_2 were also negative but weaker and borderline-significant. Among children/young adults (< 25 years), higher PM_{10} exposure was associated with a reduced FVC of –31.7 ml (95 % CI: –55.9, –7.5).

Conclusions: Long-term exposure to PM_{10} impacts lung function in both children/young adults and middle-aged and elderly.

P17

Prevalence and characteristics of small airways disease in a general population

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Background: Small airways disease (SAD) is being regarded as a precursor of chronic airway obstruction, such as in COPD and asthma. In clinical settings, SAD is commonly inferred from spirometry. The aims of this study were to estimate the prevalence of isolated SAD and describe its demographic and clinical characteristics in a large sample of the Austrian general population.

Methods: This study is based on data from 6906 adults (≥ 18 years) from the Austrian LEAD study. Isolated SAD was defined using spirometry as the ratio between the forced expiratory flow between 25 and 75 % of vital capacity and forced vital capacity below the lower limit of normal (FEF25-75/FVC<LLN) with a normal ratio of the forced expiratory volume in the first one second to the FVC equal or above LLN (FEV1/FVC≥LLN).

Results: Prevalence of spirometric isolated SAD was 6.7 % (n = 465) with no sex predominance (male 50.3 % vs female 49.7 %). People with isolated SAD were older (63.8 vs 51.4 years) and more likely to be current or former smokers (63.0 % vs 49.0 %) with a median of 6 pack-years. A higher proportion lived in a rural area (23.8 % vs 20.0 %) and had a lower education level (30.7 % vs 26.2 %). Respiratory symptoms including breathlessness, wheezing, phlegm, and cough (37.8 % vs. 25.1 %), chronic cough (8.9 % vs. 4.9 %), as well as self-reported doctor diagnosis of asthma (12.3 % vs. 7.7 %), were more common among people with isolated SAD.

Conclusions: Our findings show that isolated SAD is common in the Austrian general population and provide valuable insights into its demographic and clinical characteristics.

P18

Defining small airways disease- does it matter? Comparison of prevalence and characteristics in the general population based on different definitions

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Background: Small airways disease (SAD) is regarded as a precursor of obstructive airway diseases. The most common used spirometric parameter is the forced expiratory flow between 25 and 75 % of vital capacity (FEF25-75). Aim of this study was to compare two definitions in terms of demographic and clinical characteristics in a large general population sample.

Methods: This study is based on data from 6906 adults (≥ 18 years) from the Austrian LEAD study. All individuals had a normal ratio of the forced expiratory volume in the first one second to forced vital capacity equal or above the lower limit of normal (FEV1/FVC≥LLN). Comparison was done between FEF25-75<-LLN and FEF25-75/FVC<LLN.

Results: Prevalence of FEF25-75/FVC defined SAD was higher than FEF25-75 defined SAD (6.7 % vs. 1.9 %). Subjects with FEF25-75/FVC defined SAD were older (63.8 vs. 45.6 years) and showed variations in body composition parameters including higher mean BMI (26.5 vs. 25.9) and waist circumference (99.5 vs. 95.9 cm), lower fat mass index (–0.2 vs. 0.2), and less visceral adipose tissue (–0.2 vs. 0.2). Moreover, they had almost half often a self-reported doctor diagnosis of asthma (12.3 % vs. 22.4 %) and were less likely to have a family history of asthma (9.8 % vs 20.0 %). No significant differences were found in the prevalence of current or former smokers (63.0 % vs. 57.1 %), chronic cough (8.9 % vs. 10.6 %), and respiratory symptoms (37.8 % vs. 44.8 %).

Conclusions: Our findings highlight the importance of how to define SAD. Definition based variations in prevalence, age and body composition will explain variation in presence of cardiometabolic diseases and SAD.

P19

The Association of dyspnoea and quality of life in the BOLD study

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Background: Dyspnoea seems to have an impact on health-related quality of life. However, evidence of this relationship is limited. We aimed to investigate the association of both physical and mental quality of life with dyspnoea across several low-, middle- and high-income sites.

Methods: We analysed cross-sectional data from 19,744 adults, from 31 sites, participating in the Burden of Obstructive Lung Disease (BOLD) study who had provided information on the quality of their mental and physical health as well as on dyspnoea. We measured both quality of life components using the short-form 12 (SF-12) quality of life questionnaire, and defined dyspnoea as grade 2 or higher on the modified Medical Research Council (mMRC) scale. We assessed the association of each quality-of-life component with dyspnoea using linear regression, adjusted for potential confounders. To investigate differences in this association across low-, middle- and high-income study sites, we used random-effects meta-analysis.

Results: We found that both physical and mental health component scores were lower in participants with dyspnoea compared to those without dyspnoea. This association was stronger for the physical component score (coefficient = –7.59; 95 %CI –8.60, –6.58) than for the mental component score (coefficient = –3.50; 95 %CI –4.36, –2.63). Heterogeneity in these associations was considerable across study sites.

Conclusions: Quality of life is strongly affected by the presence of dyspnoea.

P20

Real-world characteristics and treatment patterns of patients with early-stage non-small cell lung cancer in Austria: the PRATER retrospective study

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Background: The treatment paradigm for early-stage (ES) non-small cell lung cancer (NSCLC) is changing with multiple immune-oncology (IO) and targeted therapies (TTs) having recently gained approval in the pre-/post-operative setting(s). In the absence of a national lung cancer registry, the primary objective of this study was to assess the profile and initial therapeutic strategy of patients diagnosed with ES-NSCLC in Austria prior to this period.

Fig. 1 | P20

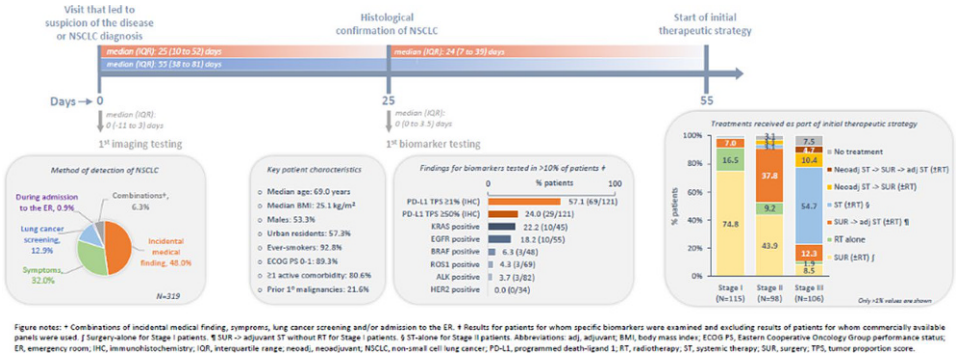

Figure notes: * Combinations of incidental medical finding, symptoms, lung cancer screening and/or admission to the ER. † Results for patients for whom specific biomarkers were examined and excluding results of patients for whom commercially available panels were used. ∫ Surgery-alone for Stage I patients. ¶ SUR -> adjuvant ST without RT for Stage I patients. § ST-alone for Stage II patients. Abbreviations: adj, adjuvant; BMI, body mass index; ECOG PS, Eastern Cooperative Oncology Group performance status; ER, emergency room; IHC, immunohistochemistry; IQR, interquartile range; neoadj, neoadjuvant; NSCLC, non-small cell lung cancer; PD-L1, programmed death-ligand 1; RT, radiotherapy; ST, systemic therapy; SUR, surgery; TPS, tumor proportion score.

Methods: This was a retrospective chart review study of adults diagnosed with ES-NSCLC during 01/Jan/2018–31/Dec/2021 at 16 leading hospital institutions at a ratio 1:1:1 across stages I:II:-III with a planned total of ~300 patients. Patients participating in interventional clinical trials were excluded.

Results: A total of 319 eligible patients were enrolled. Most patients (94 %) underwent biomarker testing and a sizeable fraction was biomarker-positive. Rates of surgery, radiotherapy, and systemic therapy (ST) were 82/85/36 %, 17/14/36 %, and 8/44/82 % for Stage I/II/III patients, respectively. Most frequent ST was chemotherapy (94 %; platinum-based in 99 % of those). Only 52 % of unresected ST-treated Stage III patients ($N=58$) also received radiotherapy. A summary of all findings is shown in the figure below.

Conclusions: Most but not all patients were treated with standard therapies and received timely medical care. Our findings will provide a benchmark for evaluating the uptake of new therapies in the IO/TT era.

P21

Prognostic impact of targetable driver alterations in resected early-stage lung cancer

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Background: Apart from ALK fusions and the common EGFR mutations, targetable molecular alterations are irrelevant for adjuvant treatment-decision making in early-stage non-small cell lung cancer (NSCLC). This retrospective analysis aimed to investigate if there is a difference in recurrence-free survival in stage I–III NSCLC harboring druggable molecular alterations compared to subtypes without targetable molecular alterations.

Methods: All consecutive patients who underwent surgery with curative intent for NSCLC (stage I–III) with targetable mutations between January 2015 and December 2020 at three Austrian institutions were identified and compared with tumors without targetable molecular alterations. Tumors with the EGFR-mutated subtype were excluded due to already existing results from prospective trials.

Results: One-hundred-and-sixty subjects had tumors with molecular alterations and 355 subjects served as control cohort. There was a higher prevalence of female sex ($p<0.0001$) and never smokers ($p=0.011$) among patients with tumors harbouring oncogenic driver mutations. The three most common alterations were the KRAS G12C mutation ($n=92$), ALK fusions ($n=21$), and the BRAF V600E mutation ($n=15$). The 1-, 3- and 5-year cumulative incidence of recurrence estimates were 16 %, 38 and 46 % in patients without molecular alterations and 16 %, 38 and 48 % in patients with the KRAS G12C mutation and 12 %, 33 and 55 % in patients with other molecular alterations, respectively ($p=0.888$). This lack of association between molecular alteration status and recurrence risk prevailed after multivariable adjustment for tumor stage and perioperative treatment.

Conclusions: NSCLC patients with resected tumors that harbor molecular alterations have the same recurrence risk as patients with tumors without molecular alterations if treated with surgery plus chemotherapy when indicated.

P22

Comparison of Rehabilitation Outcomes in Patients with Post-COVID-19 condition using T2D stratified performance score

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Background: Evaluating the effectiveness of treatments is critical for the management and prognosis of Post-COVID (PC) patients. Reliable evaluation of health-related quality of life

Table 1 | P22

Score	Diagnosis	Admission	Difference	Effect (SMD)	*p*
EQ5D-5L (PROM)	Post-COVID	0.77 ± 0.16	0.03 ± 0.15	0.11 ± 1.45	0.01*
	Other	0.80 ± 0.16	0.04 ± 0.13	0.28 ± 1.16	<0.001***
6 MWT (CROM)	Post-COVID	500 ± 112	61.6 ± 73.2	0.50 ± 0.59	<0.001***
	Other	476 ± 131	52.2 ± 70.2	0.42 ± 0.57	<0.001***

Diagnosis, ICD-10 Code: Post-COVID (U09.9) $n_1 = 194$, Other – Pulmonary Diagnosis (J44, J45, C34) $n_2 = 135$; SMD – Standardized Mean Difference; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

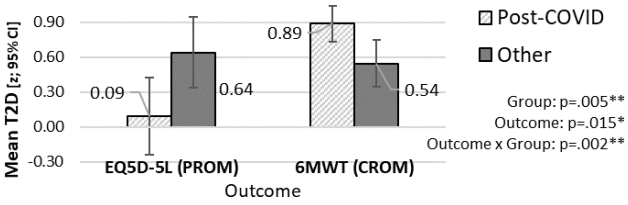

Fig. 1 | P22

(HRQol) and physical performance necessitates considering patient's individual baseline values (Zdravkovic, A. et al. Qual Life Res 2022; 31:303–315). This study compared outcomes of PC patients using stratified performance scores (T2D).

Methods: We analysed monocentric data from patients undergoing outpatient Phase II or III rehabilitation in 2023 comparing PC with other pulmonary patients. Differences in HRQol (EQ5D-5L) and the six-minute walk test (6 MWT) at admission and discharge were examined in 329 patients (49 ± 13 years; 65.7 % female) using T2D.

Results: PC patients were younger (45 ± 12 years) and more often female (75 % vs 53 %). They had significantly lower EQ5D-5L scores compared to other patients. Both patient groups showed significant improvements in EQ5D-5L and 6 MWT. Stratified by baseline values (T2D), PC patients performed poorly in HRQol but very well in 6 MWT.

Conclusions: Rehabilitation significantly improves outcomes for most patients. PC patients often start from a worse baseline and show remarkable progress, especially in functional capacity, but not in HRQoL.

P23

Lungenfibrose bei rheumatoider Arthritis (RA-ILD)

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Background: Zirka 1 % der Bevölkerung leidet an rheumatoider Arthritis (RA) und 10 % dieser Patienten entwickeln eine interstitielle Lungenerkrankung (ILD). Die RA-ILD ist ein durchaus häufiges, und an Schwere und Komplexität unterschätztes Krankheitsbild.

Methods: In dieser retrospektiven Analyse wurden Patienten aus dem ILD-Register des KUK Linz zwischen 2017 und 2022 analysiert, bei denen auch eine RA diagnostiziert worden war. Eingeschlossen wurden auch Patienten, bei denen sich die ILD vor der rheumatoiden Arthritis manifestiert hatte. Die radiologischen Muster wurden anhand einer hochauflösenden Computertomographie (HRCT) klassifiziert. Bei regelmäßigen Routinekontrollen im Abstand von drei bis sechs Monaten wurden jeweils Lungenfunktion, Diffusionskapazität (DLco), sowie ein 6-Minuten-Gehtest durchgeführt. Als Progression der RA-ILD wurde ein Abfall der DLco ≥ 10 % oder der forcierten Vitalkapazität (FVC) ≥ 5 % im Vergleich zur ersten Messung bei Einschluss definiert.

Results: Insgesamt wurden 29 Patienten identifiziert und ihr Verlauf über einen medianen Zeitraum von 2 Jahren nach Anbindung an das ILD-Zentrum am Kepler Universitätsklinikum analysiert. Im Beobachtungszeitrum verstarben 7 (24,1 %) der 29 Patienten, 17 Patienten (58,6 %) hatten eine Progression. Das UIP-Muster war mit einer deutlich schlechteren Prognose als das NSIP-Muster vergesellschaftet. Die harzard ratio für Progression für UIP versus NSIP lag bei 9,00 (95 % CI 1,86–43,59, $p = 0{,}006$). Nach 12 Monaten hatten 81,8 % der Patienten mit UIP-Muster einen Progress. Hingegen hatten nur 14,3 % zum selben Zeitpunkt mit NSIP-Muster einen Progress. Ein höheres Alter (> 70a) konnte ebenso als Risikofaktor für einen schnelleren Progress identifiziert werden.

Conclusions: Das radiologische Muster und das Patientenalter sind relevante Prognosefaktoren bezüglich Progresses und Mortalität bei RA-ILD. Die erhaltenen Resultate stehen im Einklang mit einem Großteil der verfügbaren Literatur. Angesichts der hohen Mortalität und Morbidität der RA-ILD ist mehr strukturierte Forschung, insbesondere bezüglich Früherkennung, eine vermehrte Anbindung an ILD-Zentren und eine nationale wie auch internationale Standardisierung von diagnostischen und therapeutischen Verfahren nötig.

P24

Prevalence of Bronchodilator response in a general population–Data from the Austrian LEAD cohort

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n total = 11638		BDR 2005 positive	BDR 2021 positive	p-value
	n (%)	458 (4.0)	484 (4.2)	0.4
Female sex	n (%)	235 (51.3)	271 (56.0)	0.15
Age, years	mean (±SD)	50.4 (18.5)	50.9 (18.9)	0.7
Height, cm	mean (±SD)	169.9 (9.7)	169.0 (9.8)	0.2
Weight, kg	mean (±SD)	76.8 (16.6)	75.6 (15.6)	0.3
BMI, kg/m^2	mean (±SD)	26.5 (4.9)	26.4 (4.8)	0.8
Ever-smoker	n (%)	280 (61.1)	279 (57.6)	0.3
Never-smoker	n (%)	178 (38.9)	205 (42.4)	0.3
FEV1/FVC<LLNpreBD	n (%)	203 (44.3)	179 (37.0)	0.022*
FEV1preBD, litres	mean (±SD)	2.5 (0.8)	2.7 (0.9)	0.03*
FEV1postBD, litres	mean (±SD)	2.9 (0.9)	3.0 (1.0)	0.052
FVCpreBD, litres	mean (±SD)	3.6 (1.1)	3.7 (1.1)	0.2
FVCpostBD, litres	mean (±SD)	3.9 (1.1)	4.0 (1.1)	0.3
Presence of Respiratory symptoms	n (%)	276 (60.3)	271 (56.0)	0.2
Asthma diagnosis	n (%)	113 (24.7)	104 (21.5)	0.2
Current inhaled medication	n (%)	90 (19.7)	84 (17.4)	0.4

Abbreviations: BD, bronchodilation; BDR, bronchodilator response; SD, standard deviation; BMI, body mass index; FEV1, forced expiratory volume in 1 second; FVC, forced vital capacity; LLN, lower limit of normal

Fig. 1 | P24 Characteristics of individuals with positive 2005 & 2021 BDR

Background: Bronchodilator response (BDR) testing is commonly used to assess any improvement of spirometric measurements after beta-agonist inhalation. In the 2005 ATS/ERS defined a positive BDR in adults as an increase of FEV1 or FVC>200 ml and 12 % (BDR2005). Recently a new definition was recommended by the ATS/ERS, defining improvement of FEV1 or FVC>10 % compared to the predicted value as positive (BDR2021), accounting more accurately for sex, age and height.

Methods: We analysed the prevalence of positive BDR for both definitions using the Austrian general population LEAD cohort including participants aged 18–82 years. All subjects (11,638; 52.8 % females) with valid pre- and post-BD spirometry were included.

Results: The prevalence of the BDR2005 & 2021 definitions were 458 (4.0 %) and 484 (4.2 %), respectively. Using BDR2021 resulted in higher, rates of positivity in females and in never-smokers, while using BDR2005 led to higher numbers in participants with airway obstruction (FEV1/FVC<LLN) and lower FEV1 (Table 1). Only the latter two parameters were statistically significant.

Conclusions: Both definitions detected similar prevalence of positive BDR. The 2021 definition demonstrates a lower dependency on male sex and low baseline FEV1, at the same time including more subjects without spirometric obstruction and no history of smoking. This could lead to earlier detection of airway changes especially in individuals with high FEV1 or FVC.

P25

Neoadjuvant therapy in resectable non–stage IV non-small cell lung cancer: real-world analysis

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Background: Effective therapies are needed for patients with resectable non-small lung cancer (NSCLC), Phase 3 trials of neoadjuvant immunotherapy-based regimens have shown promising clinical outcomes. However, data on treatment regimens with combined chemo-immunotherapy, patient profiles, and clinical outcomes of patients with resectable non-stage IV NSCLC in the real-world setting are limited.

Methods: This dual-center registry-based study describes clinical patterns and outcomes of using neoadjuvant combination of platinum-based chemo-immunotherapy in patients with resectable NSCLC (i. e., stage II, IIIA, IIIB, IIIC, excluding patients with drugable targets). The main objective was to evaluate the proportion of patients receiving local therapy (i. e., surgery or radiotherapy) after chemo-immunotherapy. Further objectives were to assess the pathological outcome of postoperative patients, disease-free survival, and overall survival. Available histological samples underwent next-generation sequencing (NGS).

Results: Seventy-two patients (median age 64.5 years (interquartile range (IQR), 59–69); 40.3 % women) were included in the study. Prior to initiation of therapy, NGS was available in 90.3 % and PD-L1 expression levels in 97.2 % of patients.

Median follow-up time from date of diagnosis was 374 days (IQR, 241–605). After neoadjuvant therapy, 46 patients underwent surgery and 23 radiotherapy, resulting in 69 patients receiving local therapy. Out of 46 patients who underwent surgery, 22 had complete pathological remission, 11 major pathological remission, and 12 minor pathological remission.

Disease-free survival (95 % confidence interval (CI)) in 43 surgical patients with R0 resection was 98 % (93–100), 98 % (93–100) and 81 % (57–100) after 180, 360 and 720 day, respectively. Overall survival (95 % CI) was 97 % (94–100), 90 % (82–99) and 90 % (82–99), after 180, 360 and 720 day, respectively.

Conclusions: Following neoadjuvant chemo-immunotherapy, the majority of resectable non-stage IV NSCLC patients could undergo local therapy in routine clinical practice when patients' selection for chemo-immunotherapy was performed according to NGS results. This was associated with favorable disease-free and overall survival.

P26

Mobocertinib in Patients with EGFR Exon 20 Insertion-Positive Non-Small Cell Lung Cancer (MOON): An International Real-World Safety and Efficacy Analysis

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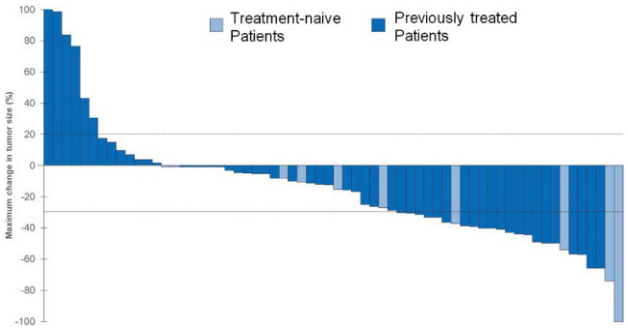

Fig. 1 | P26

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Background: EGFR exon 20 (EGFR Ex 20) insertion mutations in NSCLC are insensitive to traditional EGFR tyrosine kinase inhibitors (TKIs). Mobocertinib is the only approved TKI specifically designed to target EGFR Ex20.

Methods: We performed an international, safety and efficacy analysis on patients with EGFR Ex20-positive NSCLC. We explored the mechanisms of resistance by analyzing postprogression biopsies, as well as cross-resistance to amivantamab.

Results: Data from 86 patients with a median of two prior lines of treatment were analyzed. Grade ≥ 3 treatment-related.

adverse-events (TRAEs) were reported in 38 % of patients and included diarrhea (22 %) and rash (8 %). In 17 % of patients, therapy was permanently discontinued, and two patients died due to TRAEs. Women were seven times more likely to discontinue treatment. In the overall cohort, the objective response rate to mobocertinib was 34 % (95 % CI, 24–45). The median progression-free and overall survival was 5 months (95 % CI, 3.5–6.5) and 12 months (95 % CI, 6.8–17.2), respectively. The intracranial response rate was limited (13 %), and one-third of progressions involved the brain. Mobocertinib also showed antitumor activity following EGFR Ex20-specific therapy and vice versa. Potential mechanisms of resistance to mobocertinib included amplifications in MET, PIK3CA, and NRAS.

Conclusions: Mobocertinib demonstrated meaningful efficacy in a real-world setting but was associated with considerable gastrointestinal and cutaneous toxicity.

P27

Bronchodilator response of spirometry and lung volumes in healthy subjects

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Background: Bronchodilator response (BDR) testing is commonly used to assess any change of pulmonary function measurements after inhalation of beta agonists. A significant improvement is usually defined by the amount of improvement above the 95th percentile in a general healthy population. Previous studies and guidelines report this to be an absolute increase of 200 ml and 10–12 % change in relation to baseline for FEV1 and FVC, as well as a 10 % improvement compared to the predicted value.

Methods: We analysed the BDR defined by the upper limit of change in healthy participants, defined by the 95thpercentile, using the Austrian general population LEAD cohort. All healthy 18–82 years old subjects with complete pre- and post-BD lung function testing were included. Health was defined as never-smoking, no history of respiratory disease and absence of respiratory symptoms.

Results: The 95th percentile of change for FEV1 was 300 ml and +8.7 %, for FVC 220 ml and +5.5 %. Expressing the change in relation to the predicted value, the upper limit was +8.2 and +5.1 % for FEV1 and FVC respectively. The lung volumes expectedly decreased after BD, setting the upper limit for RV at –370 ml and –18.9 %, as well as –4.8 % for the RV/TLC ratio. For FRC the 95th percentile was a decrease of –410 ml and –11.7 %, for TLC –430 ml and –4.3 %. We observed the largest changes in relation to baseline for the specific conductance (sGaw), placing the 95th percentile for improvement at 1.26 kPa and +91.5 %.

Conclusions: We provide new estimates for cut-offs defining BDR for spirometry in healthy subjects. Additionally, we offer upper limits for change in lung volumes and sGaw. Future studies will have to investigate if these cut-offs correspond to clinically significant changes.

P28

MPAP/VO_2-slope as novel non-invasive surrogate of invasive cardiopulmonary exercise hemodynamics

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Background: Exercise pulmonary hypertension (EPH), defined by a mean pulmonary arterial pressure (mPAP)/cardiac output (CO) slope >3 mmHg/L/min, is associated with poor prognosis. Its diagnosis relies on invasive assessment of pulmonary exercise hemodynamics using right-heart-catheterization (RHC). Non-invasive assessment of exercise hemodynamics using exercise-echocardiography is limited by the inaccurate estimation of CO. Therefore, we aim to investigate the utility of a novel non-invasive exercise-echocardiographic surrogate ($mPAP_{echo}/VO_2$-slope) of pulmonary exercise hemodynamics and its prognostic relevance.

Methods: Patients who underwent invasive exercise RHC due to suspected pulmonary hypertension (PH) and combined cardiopulmonary-exercise-testing (CPET) with exercise-echocardiography within 3 months between 2006 and 2023 were included. CPET derived oxygen-uptake (VO_2) as surrogate for CO and exercise echocardiography derived mPAP ($mPAP_{echo}$) were used to calculate $mPAP_{echo}/VO_2$-slopes. The association of VO_2 with CO and the association of $mPAP_{echo}/VO_2$-slope with invasive mPAP/CO-slope were assessed. Receiver operating characteristic (ROC) were used to identify the best cut-offs of $mPAP_{echo}/VO_2$-slope to detect EPH and to predict clinical worsening (hospitalization/death). Survival analyses were performed using Kaplan-Meier-curves and loq-rank tests.

Results: $N=110$ patients (54 ± 13 years, $n=85$ (77 %) female, median observational time: 145 (31–167) months) were included. $N=69$ patients had a complete set of RHC- and exercise-echocardiography data. Cardiopulmonary exercise performance was well preserved in the overall collective (peakVO_2: 84 ± 24 %predicted). Resting- and peakVO_2 were significantly correlated with invasive resting- and peakCO (restVO_2(L/min): $\rho=0.68$; $p=<0.001$; peakVO_2(L/min): $\rho=0.69$; $p=<0.001$). Non-invasive $mPAP_{echo}/VO_2$-slope was significantly correlated with invasive mPAP/CO-slope ($\rho=0.62$; $p<0.001$). The best $mPAP_{echo}/VO_2$-slope cut-off to predict EPH was 13.9 mmHg/L/min (AUC 0.85, 95 %CI (0.74–0.96), sensitivity:0.83, specificity:0.89). Moreover, a $mPAP_{echo}/VO_2$-slope ≥ 11.1 mmHg/L/min was associated with poor prognosis (log-rank, $p=0.036$).

Conclusions: $MPAP_{echo}/VO_2$-slope turned out as promising non-invasive surrogate of invasive pulmonary exercise hemodynamics. Moreover, it may serve as prognosticator in patients at risk for PH. Larger prospective studies are needed to confirm the clinical and diagnostic relevance of $mPAP_{echo}/VO_2$-slope.

P29

Allostatic load in adults with airflow obstruction–a new concept to understand health challenges?

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Background: Allostatic load score (ALS) refers to the individual ability to cope with environmental challenges and involves interaction of several physiological systems. This study aims to compare ALS between adults with and without airflow obstruction (AO).

Methods: Data from Austrian LEAD study ($N=11{,}785$, age 18–82 yrs) were used and AO was defined by post-BD FEV1/FVC<0.7. ALS was calculated using 13 biomarkers. The at-risk range was defined as the highest age-specific quartile of systolic and diastolic blood pressure (SBP/DBP), pulse wave velocity (PWV), HbA1c, cholesterol, triglycerides, CRP, fat mass index (FMI), and visceral adipose tissue (VAT) and the lowest quartile of high-density lipoprotein (HDL), glomerular filtration rate (GFR), bone density (BD), and appendicular lean mass index (ALMI). Participants scored 1 point per at-risk marker and 1 for medication for hypertension, diabetes, and dyslipidaemia. Total points constituted ALS.

Results: 833 (7.2 %) participants had AO and 678 had complete data for ALS calculation. An age/sex/smoking status-matched control group with no AO ($N=678$) was randomly selected from LEAD study population. Mean±SD for ALS was 3.6 ± 2.4 for controls and 4.2 ± 2.5 for AO ($p<0.001$). The proportion of participants in the at-risk range for SBP, PWV, CRP, BD, ALMI and VAT was higher in AO than in controls ($p<0.05$).

Conclusions: These findings provide important information about the association of obstructive lung function and stress-related health outcomes.

P30

Optimal Cut-offs for SAD Indicators in Predicting Airflow Obstruction

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Background: Small airways dysfunction (SAD) contributes a major role in chronic obstructive pulmonary disease and suspected to be an early indicator for future disease development. We assess the ability of SAD markers on prediction of development of airflow obstruction (AO).

Methods: Participants from Austrian general adult population (LEAD cohort) without any COPD or Asthma diagnosed and with normal lung function (FEV1/FVC≥LLN) in the baseline ($n=5746$) included in the study. We analysed the development of AO in average duration of 4 years. We compared the ability of SAD indicators, including forced mid-expiratory flow FEF25-75 % and FEF25-75 %/FVC, in the prediction of AO (FEV1/FVC<LLN) using Receiver Operating Characteristic (ROC) analysis.

Results: 223 (3.9 %) participants developed an airflow obstruction in follow-up visit. ROC analysis showed that FEF25-

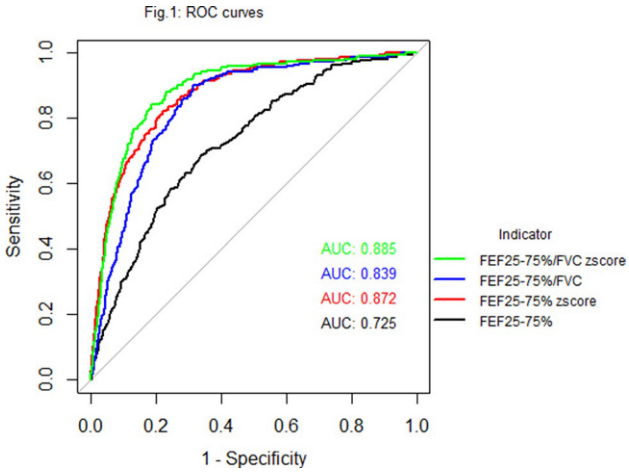

Fig. 1 | P30

75 %/FVC z-score performs better with the maximum Area Under Curve (AUC = 0.885 compared to 0.839, 0.872, and 0.725 for FEF25-75 %/FVC, FEF25-75 % z-score, and FEF25-75 %, respectively) in predicting development of AO within 4 years until the next follow-up visit (Fig. 1). The optimal cut-off (-0.7814) is calculated using Youden index which maximizes the sum of sensitivity and specificity.

Conclusions: This cut-off is a spirometric marker to identify risk for AO and can be applied for an early hint to participants with normal lung function who have the risk to develop AO in 4 years.

P31

Allostatic load in incident airflow obstruction: Evidence for syndemics?

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Background: A systemic paradigm shift is hypothesised in the transition of COPD as a single disease with comorbidities to COPD as part of a multimorbid state. Allostatic load score (ALS) is ability to cope with stressors, considering interactions among physiological systems. The current study analysed differences in ALS between adults with incident and persistent airflow obstruction (AO).

Methods: Data from the baseline and follow up visits (mean assessment interval: 4.1 yrs) of Lung hEart sociAl boDy (LEAD) Austrian cohort were used. AO was defined by post-BD FEV1/FVC<0.7. Participants with persistent AO or transitioning to AO from normal status were identified. ALS was calculated using 13 biomarkers. The at-risk range was defined as the highest age-specific quartile of systolic and diastolic blood pressure, pulse wave velocity, HbA1c, cholesterol, triglycerides, CRP, fat mass index, and visceral adipose tissue, and the lowest quartile of high-density lipoprotein, glomerular filtration rate, bone density, and appendicular lean mass index. Participants scored 1 point per at-risk marker and 1 for medication for hypertension, diabetes, and dyslipidaemia. Total points constituted ALS. Comparison of ALS between persistent and incident case of AO was made using a generalized linear model, controlling for age, sex, and smoking status.

Results: The mean±SD ALS at visit 1, visit 2, and Δ ALS were 4.0 ± 2.3, 4.1 ± 2.2, and 0.23 ± 1.7 for 410 persistent, and 3.6 ± 2.3, 3.9 ± 2.2, and 0.36 ± 1.7 for 352 incident cases of AO, respectively ($P > 0.05$). None of the components of ALS were statistically different between these 2 groups.

Conclusions: A syndemic occurrence could not be confirmed in the current study.

P32

Impacts of baseline anxiety and depression on acceleration of lung function impairment in older population: Results of LEAD cohort study

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Background: Lung function impairment serves as a robust predictor of both survival and functional limitations. This study aims to assess the effects of anxiety and depression on the rate of decline in spirometry indices in the older population.

Methods: The study included participants aged ≥ 60 at visit 1 and attending visit 2 ($N = 2113$) of the Lung hEart sociAl boDy (LEAD) cohort. All participants completed the Hospital Anxiety and Depression Scale (HADS), with scores greater than 10 considered abnormal. A mixed-effect linear regression was conducted, with anxiety and depressive symptoms at baseline as independent factors and the percentage of change in FEV1 and FVC during the 4-year follow-up as the dependent variable.

Results: At visit 1, 105 (5.0 %) and 57 (2.7 %) participants were diagnosed as anxious and depressed, respectively. Anxious participants lost 149 ml (6.2 %) of FEV1 and 133 ml (4.0 %) of FVC, compared to 111 ml (3.9 %) and 53 ml (1.2 %) for non-anxious participants. Depressed participants lost 115 ml (4.5 %) of FEV1 and 81 ml (2.5 %) of FVC, compared to112 ml (4.0 %) and 56 ml (1.3 %) for non-depressed participants. Controlling for the effects of sex, obstruction status, age, smoking status, visceral adipose tissue, and metabolic syndrome, participants with anxiety at baseline showed a significantly higher loss of FEV1 ($\beta = -2.77$ %; $p = 0.006$) and FVC ($\beta = -3.57$ %; $p = 0.001$). Spirometric changes were not associated with changes in lung volumes or airway conductance.

Conclusions: Anxiety is an independent risk factor for accelerated lung function decline, underscoring the importance of screening for and treating anxiety in the older population.

P33

Characteristics of healthy subjects with positive bronchodilator response

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Background: Bronchodilator response (BDR) testing is commonly used to assess any improvement of spirometric measurements after beta agonist inhalation. The recent definition by the ATS/ERS defines a positive BDR as the improvement of FEV1 or FVC>10 % compared to the predicted value as positive. While some studies demonstrated a lower mortality in individuals with a positive BDR, much about the significance is still unknown.

Methods: We analysed the prevalence and characteristics of healthy participants with positive BDR using the Austrian general population LEAD cohort. All healthy 18–82 yeo subjects with complete pre- and post-BD lung function testing were included. Health was defined as neversmoking, no history of respiratory disease and absence of respiratory symptoms.

Results: Out of 3183 participants, 91 (2.4 %, 62.6 % females) demonstrated a positive BDR. Subjects with positive BDR had significantly lower FEV1, FVC (3.6 l vs 4.1 l males; 2.6 l vs 3.0 l females and 4.6 l vs 5.1 l males, 3.3 l vs 3.7 l females, respectively) and ratio. Interestingly, we also found a lower TLC (5.4 l vs 5.6 l) in females, but not in males with BDR. Furthermore, while a higher RV/TLC ratio (34.1 % vs 30 % males; 37 % vs 34.1 % females) was observed in both sexes, in males it remained significantly higher after bronchodilation. Specific conductance (sGaw) also was lower in participants with positive BDR (1.2 vs 1.4 males; 1.2 vs 1.5 females).

Conclusions: Healthy subjects with positive BDR demonstrate significantly reduced airflow and lower lung volumes. The low FEV1/FVC ratio and sGaw in this group is suggestive of central large airway process. Longitudinal data are needed, to evaluate if BDR is caused by early pulmonary disease or just physiological variation.

P34

Pleural interventions in lung cancer patients with malignant pleural effusion–Characteristics and clinical factors affecting their survival

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Background: Lung cancer (LC) is the most common cause of cancer-related deaths worldwide and accounts for 19 % of all cancer deaths in Austria. Malignant pleural effusion (MPE) is common and associated with poor prognosis. In these patients a pleural intervention (PI) can be performed as a diagnostict tool or for symptom control. In this study, we describe patients with MPE undergoing PI and determine prognostic factors for treatment-adjusted overall survival (OS).

Methods: For this retrospective study, we extracted data from the Landsteiner Lung Cancer Research Platform (LALUCA registry) from all patients diagnosed with LC between 11.2020 and 5.2023.

Results: Among the 1317 patients included in the registry, MPE was present at initial diagnosis in 168 patients (14.0 %), of whom 59 (35.1 %) received a PI. Additionally, 45 patients (3.4 %) developing MPE in progress likewise underwent PI. Of 104 patients receiving a PI (45.8 %), most patients underwent pleural drainage (58.6 %) while 34.6 % received a pleurocentesis and 2.9 % had a pleurodesis. Furthermore, in 31 (28.8 %) and 8 patients (7.7 %) a second and third PI was performed, respectively. In 24 patients (23.1 %) next-generation-sequencing (NGS) from MPE was done, which showed mutations in 15 cases. EGFR-mutation were found in 9 patients, ERBB in two and BRAF, MET, MYCN and KRAS mutation in one patient each.

The median follow-up-time of MPE patients undergoing PI was 27.9 months (22.1; 32.4) and median OS was 12.1 months (8.9; 17.0). The median age was 70 years (range: 30–89) and 48.1 % were female. A multivariate Cox-regression-model including clinicopathological factors, showed that histologic subtype (HR 2467 (1183; 5142) $p = 0.016$), initial distant metastasis type (HR 0.515 (0.342; 0.775) $p = 0.001$), and ECOG-performance-status (HR 2359 (1075; 5179) $p = 0.020$) were independent factors for OS.

Conclusions: This study provides valuable insights into clinical and treatment characteristics of LC patients with MPE undergoing PI and reveals independent prognostic factors influencing OS.

P35

The German Asthma Net: Patients without any type 2 biomarker signal are exceedingly rare

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Background: Severe asthma is a type 2 inflammation (T2) driven disease, in practice measured by fraction of exhaled nitric oxide (FeNO), blood eosinophil counts (BEC), and allergy-triggered symptoms. However, clinical studies also show a type-2-low (NT2) endotype of unclear relevance.

Methods: This longitudinal study assesses NT2 in the German Asthma Net (GAN), an international, multi-centre, real-life severe asthma registry through Kruskal-Wallis and Chi² tests. ERS/ATS- and ERS task-force-defined NT2 includes FeNO<40 ppb, BEC<300/μL, and no allergic trigger in patients without systemic corticosteroids (OCS).

Results: Of 2064 included patients, 57 % were female, 32 % OCS-dependent, 61 % had ≥2 exacerbations/year. Ninety-six percent of patients showed ≥1 T2 signature, and of 89 patients without T2 signature, 49 patients were OCS dependent.

Of 40 NT2 patients, 17 patients had historical T2 values, of whom 13 started targeted treatment, and 4 patients had T2 presence on follow-ups with 1 biologic start. High FeNO was seen in 46 %, high BEC in 69 %. Only 3 patients showed a repetition of NT2 at follow-up, and 16 had no follow-up.

Compared to T2, the 40 NT2 patients had less total Immunglobulin E ($p=0.001$), higher age ($p=0.012$), and more LAMA use (76 % vs 58 %, $p=0.035$), and trends to more frequent high doses of inhaled corticosteroids (beclomethasone equivalent ≥2000 μg) with 35 % vs 23 % ($p=0.09$) and fewer severe exacerbations (35 % vs 54 %, $p=0.067$), without differences in lung function values, degree of asthma control, quality of life, chronic rhinosinusitis, or gastrointestinal reflux ($p>0.05$).

Conclusions: Conclusively, 40 of 2064 severe asthma patients had no current T2 signature, with more than half presenting T2 markers at other time points.

P36

Type-2 inflammation in health and disease: the LEAD study

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Background: Presence of Type-2 (T2) inflammation is a theragnostic marker for responsiveness to inhaled corticosteroid and biological treatments in patients with airflow obstruction. The combination of increased fractional exhaled nitric oxide (FeNO, ≥20 ppb) and high blood eosinophil counts (BEC, ≥300 cells/μL), indicative of T2 inflammation was investigated in the Austrian LEAD study, a population-based cohort.

Methods: We included 4976 individuals aged 18–82 who were categorised into 4 groups based on their FeNO and BEC levels: normal ($n=2634$); elevated FeNO levels only ($n=1623$); elevated BEC only ($n=340$); and elevated FeNO levels and BEC ($n=379$). Multivariable logistic regressions were used to determine the associations of groups to risk factors, symptoms, and comorbidities against the reference group (FeNO <20 ppb and BEC <300 cells/μL).

Results: Regression analysis showed that older ages, male sex, higher values of BMI and former smoking status were associated to an increased risk of having elevated FeNO and BEC, when analysed separately and together. We found that chronic cough and sputum production were most associated with those with BEC≥300 cells/μL (corresponding odd ratios [95 % CI]: 1.22 [0.78, 1.84], and 1.37 [1.13, 2.62]) whilst wheezing, dyspnoea and asthma were most associated with individuals with both elevated FeNO levels and BEC (corresponding odd ratios [95 % CI]: 2.27 [1.56, 3.26], 1.32 [0.64, 2.50] and 3.63 [2.69, 4.88]) in age- and sex-adjusted models. An additive effect of elevated FeNO levels and BEC was observed in extrapulmonary conditions particularly in allergy, eczema, rhino conjunctivitis (corresponding odd ratios [95 % CI]: 2.30 [1.84, 2.88], 1.37 [1.03, 1.81] and 2.95 [2.34, 3.70]). The combination of FeNO levels and BEC is shown to have an additive effect in characterising T2 inflammation.

Conclusions: T2 inflammation indicated by elevated FeNO levels and/or BEC is not only associated with respiratory conditions but also extends to extrapulmonary traits.

P37

Variability of eosinophilia and pulmonary conditions: the LEAD study

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Background: Blood eosinophil counts (BEC) show moderate variability in disease types over time, but evidence for this and their association with pulmonary and extrapulmonary traits in a general population is lacking. We hypothesise a temporal variation of BEC over two visits (V1 and V2; 4.3 ± 0.6 years) in the population-based Austrian LEAD study.

Methods: Qualified subjects (n = 6932, 18–82 years) were classified into four BEC groups with 210 (upper) cells/μL thresholds (Hartl et al., 2020): consistently high (BEC_{CH}; ≥ 210 cells/μL at V1 and V2), consistently low (BEC_{CL}; < 128 cells/μL at V1 and V2), variably increasing (BEC_{VI}; < 210 cells/μL at V1 and ≥ 210 cells/μL at V2) and variably decreasing (BEC_{VD}; ≥ 210 cells/μL at V1 and < 210 cells/μL at V2).

Results: 1) 83.7 and 67.3 % subjects from < 210 and ≥ 210 cells/μL categories remained stable over time and 16.3 and 32.7 % showed BEC_{VI} and BEC_{VD} respectively; 2) the variability in BEC effected lung function changes (Δ FEV_1 (ml): BEC_{VD}, −48.9 ± 216.2 and BEC_{VI}, −104.4 ± 248.7; and Δ FVC (ml): BEC_{VD}, 45.1 ± 316.9 and BEC_{VI}, −25.4 ± 329.9); 3) inhaled corticosteroid use was most associated with BEC_{CH} and BEC_{VI} (odds ratios [95 % CI]: 3.58 [2.56, 5.01] and 2.64 [1.76, 3.90]) which differed from BEC_{VD} (bronchodilator reversibility; odds ratios 2.45 [95 %CI 1.55, 3.75]) in logistic regression models; and 4) respiratory conditions (asthma, chronic obstructive pulmonary disease, chronic cough, sputum production and wheezing) are significantly and positively associated with BEC_{CH} and less so with BEC_{VI}.

Conclusions: In a population-based cohort, variable BEC patterns over time are associated with changes in lung function and a single measurement of BEC is insufficient to determine airway inflammation phenotypes.

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Longitudinal transitional states of spirometric patterns: the LEAD study

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Background: The Global Initiative for Chronic Obstructive Lung Disease (GOLD) establishes airflow limitation dichotomised by FEV1/FVC < 0.7 and its severity by FEV1 %pred. This study aims to classify spirometric patterns globally through a similar dichochotomy: normal airflow (FEV_1/FVC ≥ 0.70, FEV1 ≥ 80 % pred.); preserved ratio impaired spirometry (PRISm; FEV_1/FVC ≥ 0.70, FEV_1 < 80 % pred.); airflow limitation with preserved flow (FEV_1/FVC < 0.70, FEV_1 ≥ 80 % pred.); or classic obstruction (FEV_1/FVC < 0.70, FEV_1 < 80 % pred.).

Methods: The pulmonary changes in transitional states of these spirometric patterns were clarified in the population-based Austrian LEAD study at visits 1 (V1) and 2 (V2). Of 11.547 subjects (18–82 years) with valid post-bronchodilator spirometric measurements, 7233 were re-examined after 4.3 ± 0.7 years and categorised into different spirometric patterns.

Results: The prevalence rates of individuals with PRISm (2.8 %, 2.4 %) and classic obstruction (3.0 %, 3.1 %), but not preserved flow (4.1 %, 7.5 %), were consistent at V1 and V2. Individuals with PRISm-V1 exhibited substantial rates of transition with 56.3 % shifting to different spirometric patterns at V2. Individuals with preserved flow-V1 or classic obstruction remained relatively stable (68.4 and 70.1 % respectively). Changes in lung function did not differ significantly between persistent conditions except in residual volume (p = 0.019). At baseline, persistent PRISm and preserved flow individuals generally shared similar characteristics while persistent classic obstruction individuals were observed to have worsened lung functions, more respiratory conditions and smoking habits and exposures. Individuals with incident PRISm (normal/obstruction-V1 and PRISm-V2) also experienced the largest changes in pulmonary measurements compared to other subjects or those with incident obstruction (normal/PRISm -V1 and obstruction-V2). Whilst baseline lung function was similarly lower in incidence conditions compared other subjects, smoking habits and exposures, BMI and male sex were more likely to influence incident obstruction conditions.

Conclusions: Our data illustrates the need for repeated spirometric assessments for accurate monitoring of impairment and/or disease conditions.

P39

Impact of Extrafine Formulation Single-inhaler Triple Therapy on Asthma Control and HRQoL After 1 Year: TriMaximize–A Real-world View in Asthma Therapy from Austria

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Background: RCTs have shown significant clinical benefits of extrafine single-inhaler triple therapy (efSITT) consisting of beclomethasone dipropionate/formoterol fumarate/glycopyrronium bromide (BDP/FF/GB) in the treatment of asthma patients. The impact of efSITT on asthma control and health-related quality of life (HRQoL) in a real-world setting is yet to be evaluated.

Methods: TriMaximize is a multicentre, multicountry, prospective non-interventional study investigating the impact of efSITT in moderate-to-severe asthma patients in real-world practice. Changes in asthma control and HRQoL are assessed by the Asthma Control Test (ACT) and Mini Asthma Quality of Life Questionnaire (Mini-AQLQ), respectively. We present an interim analysis of 65 patients from Austria after one year of treatment with efSITT.

Results: At inclusion, 47.7 % of patients were receiving ICS/LABA and 47.7 % ICS/LABA/LAMA treatment, both fixed or free. After one year of treatment with efSITT, mean change in ACT score from baseline (14.3) was 6.9 points ($p<0.0001$) in the overall population, 7.6 points ($p<0.0001$) in patients on prior treatment with ICS/LABA (baseline: 14.5) and 6.4 points ($p<0.0001$) in patients on prior treatment with ICS/LABA/LAMA (baseline: 14.2). All results exceeded the minimal clinically important difference (MCID) of 3 points. Mean change in Mini-AQLQ from baseline (4.2) was 1.0 points ($p=0.0002$) in the overall population, 1.3 points ($p=0.0016$) in patients on prior ICS/LABA (baseline: 4.4) treatment and 0.7 points ($p=0.0489$) in patients on prior treatment with ICS/LABA/LAMA (baseline: 4.1). with all results exceeding the MCID of 0.5 points. Lastly, there was a significant improvement in FEV_1 of 200 ml ($p=0.0452$) compared to baseline in the ICS/LABA group, with a non-significant improvement of 110 and 160 ml in the ICS/LABA/LAMA group and overall population respectively.

Conclusions: This interim analysis shows a significant and persistent improvement in both asthma control and HRQoL after one year of treatment with efSITT consisting of BDP/FF/GB following a switch from ICS/LABA or ICS/LABA/LAMA.

P40

Baseline predictors of survival in lung cancer patients: data from the LALUCA real-world registry

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Background: Lung cancer (LC) is a cancer with poor prognosis and is the leading cause of cancer-related deaths in men and in second place among women in Austria. Real-world predictors of long-term survival are lacking.

Methods: We analyzed the data from our real-world LALUCA (Landsteiner Lung Cancer Platform) registry from all patients diagnosed with LC between Nov 2020 and Dez 2022. The LALUCA registry is a multicenter, prospective clinical data registry intended to support quality control and clinical research in lung cancer patients. The following potential clinical predictors of survival prior to treatment initiation were collected: sex, age at diagnosis, pack years, asbest exposure, performance status (ECOG), lab tests including CRP and LDH as well as the presentation mode and symptoms at diagnosis.

Results: Data on 1315 patients were included. Table 1 demonstrates the parameters that were associated with median

Patient Characteristics	Total Cohort N (%) = 1315	Median OS in months	95% CI	p-value
Sex				
Male	702 (53%)	32.35	(25.38; NA)	0.105
Female	613 (47%)	NA	(30.84; NA)	
Age at Diagnosis				
≥65y	829 (63%)	NA	(38.53; NA)	0.001
<65y	486 (37%)	28.70	(23.74; 35.24)	
Pack years				
≥30py	945 (72%)	34.65	(27.58; NA)	0.865
<30py	208 (16%)	32.35	(22.98; NA)	
Unknown	162 (12%)			
Asbest exposition				
Yes	78 (6%)	30.84	(17.95; NA)	0.974
No	1073 (82%)	35.28	(28.18; NA)	
Unknown	164 (12%)			
ECOG				
0	716 (54%)	NA	(NA; NA)	0.000
1	390 (30%)	25.32	(18.45; 33.37)	
>1	209 (11%)	9.57	(7.23; 17.82)	
Unknown	57 (4%)	9.30	(3.65; NA)	
CRP				0.000
≥5mg/L	717 (60.6%)	26.33	(21.76; 33.47)	
<5mg/L	465 (39.3%)	NA	(NA; NA)	
Unknown	133 (10%)			
LDH				
≥300	159 (12%)	17.19	(13.12; 26.30)	0.000
<300	874 (66%)	43.92	(33.47; NA)	
Unknown	282 (21%)			
Presentation Mode				
Symptoms	769 (58%)	26.17	(21.83; 34.39)	0.000
Incidental Finding	470 (36%)	NA	(NA; NA)	
Unknown	64 (5%)			
Other	12 (1%)			
Symptoms at Diagnosis				
No Symptoms	336 (26%)	NA	(NA; NA)	0.000
Symptoms	942 (72%)	27.58	(23.70; 33.67)	
Unknown	37 (3%)			

Fig. 1 | P40

overall survival in univariate analysis. Baseline ECOG (hazard ratio [HR] = 1813, 95 % confidence interval [CI] [1.19, 2.76]), LDH (HR = 3251, 95 % CI [1.39, 7.58]), and pack years (HR = 0.440, 95 % CI [0.21, 0.93]) were overall independent prognostic predictors of survival in multivariate analysis.

Conclusions: Poor performance status, high LDH and heavy smoking are predictors of worse survival in Austrian lung cancer patients in this real-world setting.

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Efficacy and safety of three herbal medicinal products in patients with acute bronchitis: a multi-center, randomized, open-label clinical trial

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Background: Acute bronchitis, a common outpatient condition often with cold symptoms, is frequently treated with herbal medicines like Prospan® (ivy), Bronchipret® (ivy-thyme), and Bronchicum® (thyme-primrose). This multi-center, randomized, open-label trial evaluated their safety and efficacy in adults.

Methods: 328 acute bronchitis patients were divided into three groups: Prospan® (n = 140), Bronchipret® (n = 93), and Bronchicum® (n = 95). Patients self-administered the test products according to their SmPCs for seven days. The Bronchitis Severity Score (BSS) was assessed at baseline and during the 7-days treatment period, and at follow-up visits on days 10 and 14. Adverse events were documented and analyzed descriptively.

Results: At baseline, the BSS was comparable for Prospan® (11.78), Bronchipret® (11.71) and Bronchicum® (11.79). By day 7, BSS decreased by 9.13 points for Prospan, 7.69 for Bronchipret, and 8.59 for Bronchicum® (Fig. 1). Prospan showed a significantly greater reduction than Bronchipret® (–1.45 points, p < 0.0001) and a greater, but not significant, reduction than Bronchicum® (–0.56 points, p = 0.0607). Adverse events occurred sporadically, and none were categorized as serious.

Conclusions: While herbal multi-extract combinations are often credited with efficacy advantages over single-extract preparations, this study shows that the ivy extract in Prospan® is equally or even more effective than thyme-primrose or ivy-thyme combinations for the treatment of acute bronchitis.

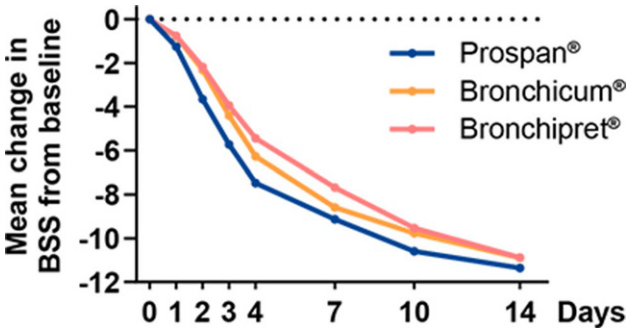

Fig. 1 | P41

P42

Langfristige Veränderungen der Lungenfunktion bei eosinophilem und nicht-eosinophilem Asthma bei Erwachsenen

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Background: Eosinophiles Asthma ist ein gut definierter Asthma-Phänotyp. Trotz der Charakterisierung in schweren Asthmakohorten gibt es nur wenige Längsschnittdaten zu eosinophilem (Ea) und nicht-eosinophilem (NEa) Asthma in der Allgemeinbevölkerung.

Methods: Daten aus der österreichischen LEAD-Beobachtungskohorte wurden zu zwei Zeitpunkten analysiert (Erstbesuch (V1) 2011–2016, medianes Follow-up 4,1 Jahre). 6734 Erwachsene > 25 Jahre mit aktueller ärztlicher Diagnose Asthma wurden eingeschlossen. Ea hatte eine Eosinophilenzahl im Blut von > = 150/ul mit inhalativer Kortikosteroidtherapie (ICS) oder > = 300/ul ohne ICS; und NEa hatte Werte unterhalb dieser Grenzwerte.

Results: Alter, Größe und Geschlecht waren zwischen den Gruppen nicht unterschiedlich. Ea (1,69 % Prävalenz) hatte durchweg niedrigere FEV1, FEV1/FVC %pred GLI, höhere Bronchodilatator (BD) Reaktion, niedrigeren peripheren exspiratorischen Fluss (FEF25-75 %) %pred GLI (61,9 vs 72. 8) in V1, der bei Besuch 2 (V2) konstant blieb (62,2 vs. 70,1; p < 0,05), aber eine geringere mittlere FEV1-Abnahme (–5,7 ml/Jahr) im Vergleich zu NEa (2,67 % Prävalenz; –23,6 ml/Jahr). Eine Atemwegsobstruktion, definiert durch FEV1% und FEV1/FVC %pred GLI post-BD<LLN, wurde bei 20,2 % in Ea und 6,1 % in NEa bei V1 (p < 0,05) und 13,5 und 7,4 % bei V2 (p- = 0,10) beobachtet. Der Verlust der obstruktiven Lungenfunktion bei der Nachuntersuchung und die Verbesserung der Lungenfunktionsverschlechterung ist bei Ea mit der Verwendung von ICS bei V1 verbunden (unabhängig von Alter und Geschlecht).

Conclusions: FEF25-75 %-Werte könnten zur Identifizierung von Ea-Asthmatikern ohne Atemwegsobstruktion verwendet werden. Eine frühzeitige Behandlung mit ICS bei Ea-Asthmatikern kann die Lungenfunktion der Asthmatiker verbessern.

P43

An update on DIAFILD–a study aiming to expedite DIAgnosis of Fibrosing Interstitial Lung Disease

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Background: Accurate and timely diagnosis of fibrosing interstitial lung disease (FILD) is clinically challenging yet crucial to improve patient outcomes by early initiation of disease-specific anti-fibrotic therapy. DIAFILD aims to assess the importance of integrating easily accessible non-invasive diagnostic approaches to early identify FILD patients.

Methods: Our study is a prospective observational study evaluating the cumulative diagnostic value of surveys assessing FILD-specific symptoms–namely the University of California San Diego (UCSD) shortness of breath questionnaire and the Cough Assessment Test (COAT)–in combination with electronic lung auscultation (ELAUS) and thoracic ultrasound (THUS) in patients with (cases) and without (controls) FILD. Presence of fibrotic indicators on auscultation (Velcro crackles) and thoracic ultrasound (B-lines and pathological pleural lines) were assessed and correlated to presence of lung fibrosis on HRCT scan (gold standard for diagnosing FILD).

Results: Between February and October 2021, 19 consecutive FILD patients (case group) were enrolled. Females ($n=10$) and males were equally represented, median age at the time of study enrollment was 77.0 years (range 60.0 to 85.0 years). On ELAUS, Velcro crackles were found in most patients ($n=14$; 73.7 %). On THUS, most patients were found to have B-lines ($n=16$; 84.2 %) and pathological pleural lines ($n=17$; 89.5 %). Presence of pathological pleural lines on THUS and fibrotic changes on HRCT correlated strongly (Spearman's $\rho=0.561$, $p=0.013$). No correlation was found between presence of Velcro crackles and fibrotic findings on HRCT (Spearman's $\rho=0.001$, $p=0.999$).

Conclusions: Interim analysis showed a strong correlation between indicators of lung fibrosis on THUS and radiological presence of lung fibrosis on HRCT. Comparison to the corresponding findings of the control group has yet to take place.

P44

Transbronchiale Kryobiopsie unter simultaner laserendomikroskopischer Kontrolle zur Abklärung peripherer Lungenrundherde

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Background: Die endobronchiale ultraschallgesteuerte transbronchiale Biopsie (TBB) ist die bronchoskopisch am häufigsten verwendete Technik zur Abklärung von peripheren Lungenrundherden. Allerdings kann dabei die TBB nicht unter simultaner sonographischer Kontrolle durchgeführt werden, da die Ultraschallsonde und das Biopsieinstrument nicht simultan durch den Arbeitskanal vorgeschoben werden können. Die konfokale Laserendomikroskopie (CLE) verfügt über eine Sonde geringen Durchmessers und ermöglicht daher das simultane Vorschieben dieser mit einer Kryosonde. In dieser Studie wird die Sicherheit und Durchführbarkeit einer transbronchialen Kryobiopsie unter simultaner laserendomikroskopischer Kontrolle evaluiert.

Methods: In diese prospektive Studie werden Patienten mit peripheren Lungenrundherden und Indikation zur Bronchoskopie mit TBB eingeschlossen. Nach Detektion des Rundherdes mittels endobronchialem Ultraschall erfolgt eine CLE-kontrollierte Kryobiopsie (1,1 mm Kryosonde + AQFlex Sonde), wobei beide Sonden gleichzeitig zur Läsion vorgeführt werden.

Results: Bislang wurden 7 Patienten mit peripherem Lungenrundherd, der unter laserendomikroskopsicher Kontrolle kryobiopsiert wurde, in die Studie eingeschlossen. Bei allen Patienten konnten die Kryosonde und die CLE-Sonde simultan ohne Komplikationen in die Raumforderung vorgeführt werden. Eine milde Blutung nach Kryobiopsie bei einem Patienten sistierte spontan. Die Qualität der CLE-Videos wurde bei einem Patienten als nicht ausreichend bewertet. In 71 % (5/7) konnte eine definitive Diagnose durch die CLE-kontrollierte Kryobiopsie erreicht werden.

Conclusions: Die CLE-kontrollierte Kryobiopsie scheint sicher und durchführbar zu sein. Die Studie wird derzeit noch fortgeführt und die finalen Ergebnisse bleiben abzuwarten.

P45

Bronchoscopic thermal vapour ablation in the second-line of interventional COPD therapy: Feasibility, safety and trends in efficacy over 12 months; a retrospective, observational study

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Background: COPD is a common disease leading to death and disability worldwide. Phenotype-specific treatment approaches are of increasing scientific interest. Bronchoscopic thermal vapour ablation (BTVA) is a potential treatment option in patients with emphysematous phenotype and severe hyper-

inflation. Until now, feasibility, safety and efficacy of a BTVA treatment subsequent to another different interventional bronchoscopic therapy have not been examined so far and were to be evaluated in this study.

Methods: This is a retrospective observational study over a follow-up period of 12 months. Patients of a post-market BTVA registry (NCT03318406), who received BTVA treatment subsequent to another interventional treatment, were included. The primary endpoint was complete and successful performance of second-line BTVA. The secondary endpoint was evaluation of adverse events (AEs). Furthermore, trends in efficacy with changes in St. George Respiratory Questionnaire-C (SGRQ-C) and pulmonary function were observed. This abstract originates from a diploma thesis at the Medical University of Vienna, which has not been published at the time of submission of this abstract.

Results: Of 49 patients of the registry, seven BTVA patients were included, who all had previously undergone endobronchial valves or targeted lung denervation. BTVA was successfully performed in 11 out of 12 treatments. Overall, 15 AEs occurred within 12 months, of which 8 were considered as serious (SAEs). 7 of all 15 AEs were considered as treatment-related, 12 resolved without sequelae. One non-treatment related intraprocedural SAE occurred, which led to death due to injury of the main bronchus by the rigid bronchoscope. Overall, lung function parameters and SGRQ-C remained stable after BTVA without relevant reduction in hyperinflation. Statistical significance testing was not performed due to the small number of cases.

Conclusions: Second-line BTVA was overall feasible with an acceptable safety profile. More studies are needed to further investigate BTVA as a second-line treatment.

P46

BEHAVE: Benralizumab clinical efficacy, tolerability, and safety in real-world experience with home-based spirometry

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Background: Benralizumab is an IL-5Rα antibody indicated for severe eosinophilic asthma and reduces exacerbations, improves asthma control and lung function.

Methods: In this prospective, observational, cohort study we investigated the clinical outcomes of benralizumab in real-world experience and feasibility and effectiveness of home spirometry measurements. We collected baseline data in 50 patients from 12-months prior to the first Benralizumab injection and up to 48 weeks on this therapy. We analysed improvements in asthma exacerbations (AE), asthma control and lung function. Data were analysed with t-test, Wilcoxon signed-rank test or Spearman correlation coefficient.

Results: Mean age of the patients was 56.17 ± 11.56, 72 % males, 50 % never-smokers, BMI 27.25 ± 5.03, mean pack-year count 23.05 ± 13.23, median number of exacerbations in the last 12 months 3 (2–5) and maintenance OCS 20 % of the patients. Median blood eosinophil count was 306.66/µl (182.60–615.68), mean FeNO 42.31 ± 31.15 ppb, FEV1 2.27 ± 0.86 l and mean ACQ-6 2.44 ± 1.2. At week 24 there was a significant improvement in ACT ($p = 0.004$), ACQ-6 and miniAQLQ ($p < 0.001$). Comparing data at 48-weeks to baseline, we found a significant reduction AEs ($p < 0.001$) and ACQ-6 ($p = 0.02$) while FEV1 was improved by 170 ml (2.22 vs. 2.39 l). Daily compliance rates for home-spirometry measurements were 40.72 ± 29.73 % and there was a correlation between office based and home spirometry measurements ($rs = 0.88$). No safety issues were reported.

Conclusions: This study reaffirms benralizumab's effectiveness in reducing exacerbations, and enhancing asthma control, with no safety issues and provides a better understanding of its value for patients with severe eosinophilic asthma.

P47

Characterization of baseline lung allograft dysfunction in single lung transplant recipients

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Background: Baseline lung allograft dysfunction (BLAD) is characterized by the failure to achieve near-normal lung function after lung transplantation (LTX). In double lung transplant (DLTX) recipients, BLAD patients have a high risk of mortality compared to patients with normal baseline lung function. In single lung transplant (SLTX) recipients, cut-off values and associated factors have not been explored. Here, we aimed to define BLAD in SLTX recipients, investigate its impact on allograft survival and identify potential risk factors for BLAD in SLTX recipients.

Methods: We performed a retrospective, single-center analysis of the LTX cohort of LMU Munich between 2010 and 2018. In accordance with DLTX cut-offs, BLAD in SLTX recipients was defined as failure to achieve FEV1% and FVC% of greater than 60 % on two consecutive tests more than three weeks apart. Survival analysis as well as regression analysis for potential predictors of BLAD were performed.

Results: In a cohort of 141 SLTX recipients, 40 % of patients met BLAD criteria. SLTX recipients with BLAD demonstrated impaired survival. Donor/recipient lung size mismatch was associated with BLAD in obstructive and restrictive lung disease. Pulmonary function testing at a 3 months timepoint after lung transplantation predicted baseline lung function.

Conclusions: BLAD in SLTX recipients is as relevant as in DLTX recipients and should generally be considered in the follow-up of LTX recipients. Risk factors for BLAD differed between underlying obstructive and restrictive lung disease. A better understanding of associated factors may help in the development of preventive strategies.

P48

The diagnosis of dysfunctional breathing with the help of cardiopulmonary exercise testing

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Background: Dysfunctional breathing is characterized by breathing difficulties due to a chronically altered breathing pattern without any detectable structural lung disease and occurs, for example, in Long-COVID. There is currently no gold standard for diagnosis, but cardiopulmonary exercise testing appears to be the most suitable.

Methods: 14 participants, who fulfilled the criteria of the Post-COVID-Condition (WHO), were included. They underwent standardized questionnaires, lung function tests and cardiopulmonary exercise testing. Dysfunctional breathing was diagnosed by using the quadratic coefficient of the determination of the variance of tidal volume versus minute ventilation. A coefficient of determination of ≤ 0.8 was set as the upper limit for dysfunctional breathing. As a prerequisite, the minute ventilation had to be increased to at least three times the resting value.

Results: Compared to the control group, the participants with dysfunctional breathing showed more shortness of breath ($p = 0.003$) and a significantly higher tidal volume at rest ($p = 0.047$), at the first ventilatory threshold ($p = 0.046$) and at maximum ($p = 0.025$). The St. George Respiratory Questionnaire showed a significantly higher value ($p = (0.018)$.

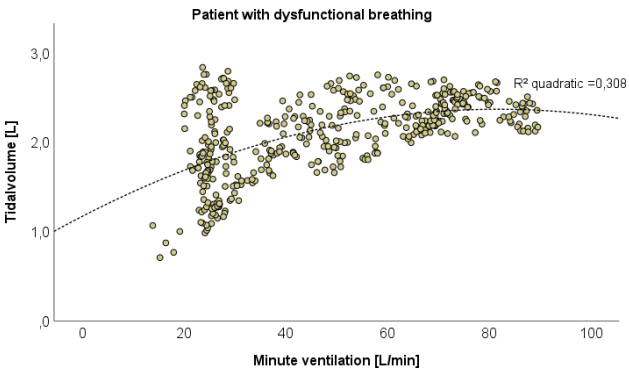

Fig. 1 | P48

Conclusions: Cardiopulmonary exercise testing, with the aid of the quadratic coefficient of determination is proven to be a new way of objectifying dysfunctional breathing. The St. George Respiratory Questionnaire offers a quick screening option.

P49

Tezepelumab in Real life setting: elucidating the clinical effectiveness, tolerability, and safety in severe asthma patients

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Background: Tezepelumab is a thymic stromal lymphopoietin antibody approved for severe asthma without biomarker limitations. However, there is insufficient real-world evidence to corroborate the findings of randomized clinical trials.

Methods: This is a retrospective two-center study of patients with uncontrolled severe asthma. We collected baseline data from up to 12 months prior to and up to 6 months on tezepelumab therapy. We compared the data for Asthma Control Test (ACT), Asthma Control Questionnaire-6 (ACQ-6), sino-nasal outcome test (SNOT-22), biomarkers, and lung function using t-test and Wilcoxon test. The data included 27 patients who received tezepelumab every 4 weeks for 5 months, 16 of whom also had a 6-month follow-up.

Results: Mean age was 60.75 ± 11.8 years, with a median number of exacerbations in the last 12 months at 2.56 (0–15). The FEV1 was 55 ± 19 %, the blood eosinophil count (BEC) 299.58 ± 372.72/µl, and the FeNO 42.63 ± 43.1 ppb. ACQ-6 scored 3.41 ± 3.77 while ACT averaged at 13.62 ± 4.7. The SNOT-22 score was 31.65 ± 23.7. Never-smokers comprised 28.6 % of the patients, while 25 % had nasal polyps and 78.6 % had allergies. Significant improvements were observed in ACT after 5 and 6 months (both $p < 0.001$), ACQ-6 ($p < 0.01$ at month 5 and $p = 0.004$ at month 6) and SNOT-22 ($p = 0.05$ at month 5 and $p = 0.029$ at month 6). FEV1 significantly increased at month 5 ($p < 0.001$). There were no significant improvements in FeNO and BEC after 6 months of treatment ($p > 0.05$). No safety concerns were observed.

Conclusions: Over the 6-months period, tezepelumab showed improvement in asthma control and FEV1 in patients with uncontrolled asthma.

P50

Impact of comorbidities on baseline characteristics in severe asthmatics in the German Asthma Net (GAN)

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Background: Assessing comorbidities is crucial for diagnosing and managing severe asthma, yet its impact on asthma outcomes is unclear.

Methods: We studied the prevalence and effect of baseline comorbidities in 2572 adults from the German severe asthma registry regarding asthma control, exacerbations, hospitalizations and lung function with Chi-Squared or Fisher's Exact Test, Kruskal-Wallis or Wilcoxon rank-sum test or Pearson's or Spearman's correlation coefficients.

Results: Our population (mean age 53.68 ± 13.23, 42.2 % males, ACT score 14.4 ± 5.5, FEV1 2 ± 0.81 l) had mean number of comorbidities 4.2 ± 2 (54.2 % had 1–4, 43.6 % had ≥ 5) as (≥ 5 %): allergic conditions (AC) 62.3 %, frequent respiratory infections (RI) 60.4 %, OCS-related conditions (OCS-C) 50 %, chronic sinusitis (CS) 48 %, arterial hypertension (HT) 34.5 %, reflux disease (GERD) 33.7 %,obesity-29.4 %, nasal polyps(NP) 25.5 %, ASS intolerance-21.2 %, depression-15 %, COPD-8.3 %, cardiovascular disease (CVD)7,5 % and urticaria 5.4 %. Exacerbations were linked to OCS-C, RI ($p < 0.001$), GERD($p = 0.002$), EGPA($p = 0.02$), depression($p = 0.01$), hyperventilation ($p = 0.003$) and HT($p = 0.04$). Lower ACQ-5 was associated with eczema ($p = 0.04$), OCS-C, RI, GERD, depression, obesity, NP, EGPA and HT(all $p < 0.001$), CS($p = 0.02$) and COPD($p = 0.001$). Reduced FEV1 correlated with OCS-C, COPD, HT($p < 0.001$) and pulmonary hypertension($p = 0.002$). Hospitalization risk was linked to OCS-C, RI, depression, CVD($p < 0.001$), COPD ($p = 0.02$), ABPA ($p = 0.03$), bronchiectasis ($p = 0.003$), neuromuscular disease ($p = 0.03$) and atelectasis ($p = 0.04$). Biologic-treated patients had more AC ($p < 0.001$)and less depression/HT ($p = 0.01/p = 0.001$).

Conclusions: Comorbidities are often linked to worse outcomes, highlighting the need for their evaluation in severe asthma.

P51

Connective Tissue Diseases and Lung Manifestations Prospective trial with focus on Systemic Sclerosis (COLIPRIS-Registry-Innsbruck)

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Background: Systemic sclerosis (SSc) is a rare autoimmune disease characterized by progressive fibrosis of the skin and internal organs. Interstitial lung disease (ILD), is a significant organ manifestation leading to pulmonary fibrosis in 25–30 %; thus, it is considered the leading cause of death in SSc. High-resolution computed tomography (HRCT) is the gold standard in diagnosing ILD, and the extent aIects treatment decisions. The study aims to identify patients with ILD progressing over time and investigate associations to lung function, inflammatory and profibrotic markers, iron status, and radiologic patterns on HRCT.

Methods: This prospective observational study includes patients with SSc during routine clinical visits at the pulmonary outpatient clinic of the Medical University of Innsbruck. Clinical, laboratory and lung function were collected at baseline (2019) and 12 months (2020). Follow-up analyses were done at year five (2024), including ILD quantification on follow-up HRCT, as well as follow-up of clinical, laboratory and lung function were collected. The study population includes 60 female and seven male patients with a mean age of 59.5 years and mean disease duration at study inclusion of 124 ± 126 months. For the follow-up we were able to recruit at least 53 patients of the inital 67.

Results: The follow-up results (clinical, laboratory, lung function and imaging parameter) that have been collected this year are currently being evaluated. The first results are expected by the time of the ÖGP Congress.

Conclusions: We are currently focusing on the longitudinal comparison of clinical, laboratory, lung function and imaging parameters to identify risk factors for progressive ILD. Though the study population includes only 67 patients, the prospective study design, systematic follow-up analysis with a high number of patients and interdisciplinary approach are strengths of our study. First analysis of follow-up data is awaited by the time of the ÖGP Congress.

P52

Early Mortality in Newly Diagnosed Advanced-Stage Lung Cancer: 20 % of Patients Die Within 3 Months in a Real-World Setting

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Background: Although major breakthroughs in the treatment of advanced lung cancer with therapies such as immunotherapy and targeted therapy have significantly improved overall and progression-free survival, a subset of patients still experience early mortality, defined as death within three months of diagnosis.

Methods: This retrospective study aims to identify risk factors for early mortality in patients with newly diagnosed stage 3 and 4 lung cancer. The study cohort includes individuals with histologically confirmed NSCLC and SCLC diagnosed at the Department of Pneumology, Medical University of Vienna, Austria between January 2020 and December 2023 with available follow-up data ($n = 311$; 55 % men, mean age 67 ± 10.2 years; 63 % in stage 4).

Results: Among the 311 patients, 63 died within 3 months of diagnosis. Of these 63 patients, 39 % received systemic therapy, 18 % received radiotherapy, and 52 % were provided with best supportive care from the time of diagnosis. In univariate Cox regression analysis, predictors of early mortality included BMI ≤ 19, SCLC, stage 4B, liver metastasis, ECOG performance status ≥ 2, and high comorbidity burden (Charlson Comorbidity Score > 4). However, only SCLC and ECOG ≥ 2 showed statistical significance in multivariate analysis. Regarding established prognostic inflammatory scores, high NLR (neutrophil-lymphocyte ratio) and PLR (platelet-lymphocyte ratio) were associated with early mortality in univariate analysis only, whereas mGPS > 1 (modified Glasgow prognostic score) and low ALI (advanced lung inflammatory index) were identified as predictors in multivariate analysis. Sex, age (even those over 80), smoking history, and, in adenocarcinoma cases, the presence or absence of driver mutations and TTF-1 status were not associated with an increased risk of early mortality. However, male gender was shown to be a risk factor for 6-month mortality after the diagnosis of lung cancer.

Conclusions: Poor ECOG performance status, SCLC histology and elevated mGPS predict early mortality in patients with stage 3 and 4 lung cancer.

P53

COPD real world studies in Austria–different study populations for different research questions?

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Background: CLARA II and STEP are two published nationwide outpatient COPD real-world studies conducted among Austrian pulmonologists. The research question of CLARA II focused on the COPD-related well-being during a stable disease phase whereas STEP focused on treatment adjustments and profiles of COPD patients in need for treatment adaptation. This analysis investigates whether there are obvious differences between the characteristics of these two study populations.

Methods: Demographic data and patient characteristics collected in CLARA II and STEP include age, gender, BMI, smoking status, COPD disease characteristics according to GOLD, lung function [FEV_1% predicted], exacerbation history, COPD maintenance treatment classes, disease burden [SGRQ-C and CAT, respectively] and predefined comorbidities. While STEP patients were eligible with the need for any COPD maintenance therapy adjustment and ongoing exacerbations, CLARA II investigated patients during the stable phase of the disease and excluded patients with current moderate/severe exacerbations or those who had such exacerbations in the last 4 weeks. The 95 % confidence intervals were calculated for comparison.

Results: 1137 STEP and 841 CLARA II COPD patients were included. Recruitment in both studies took place between July 2021 and April 2022. Comparisons of both populations will be presented and include e. g. mean age (95 % CI): 66.7 (66,1–67.3) and 66.2 (65.6–66.8); FEV_1% predicted: 56.3 % (55.3–57.3) and 57 % (55.9–58.2); proportion of GOLD E patients: 17 and 20.6 %; patients receiving triple therapy: 53.3 % (50.3–56.3) and 44.6 % (41.2–48.0). Patients from both studies will be further stratified according to clinically relevant parameters and compared with each other.

Conclusions: Two different real world COPD studies pursued different research questions with different in- and exclusion criteria. However, patient populations were very similar with regard to important demographic and disease-related parameters.

P54

Produktprobleme bei Labortests zur Differentialdiagnose Myokardinfarkt/ Lungengenembolie – Analyse vom BfArM 2014 bis 2023 veröffentlichter FSCA

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Background: Vermarktung und Marktüberwachung von In-vitro Diagnostika (IVD) sind in Europa durch die **Verordnung (EU) 2017/746 über In-vitro-Diagnostika (IVD)** geregelt. Bei Vorkommnissen und korrektiven Maßnahmen (Field Safety Corrective Action, FSCA) müssen die Hersteller diese den nationalen Behörden (Competent Authority (CA); in Deutschland: Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM) für Medizinprodukte und die meisten IVD) melden und die Kunden über Kundeninformationen (Field Safety Notice, FSN) informieren. Letztere erhalten auch die CA. IVD sind von zentraler Bedeutung bei Diagnostik und Monitoring kardialer/pulmonaler Erkrankungen. Ziel der Studie war die Untersuchung von FSN/FSCA von zur Differentialdiagnostik Myokardinfarkt/ Lungenembolie bei akutem Thorax eingesetzten IVD (Tests, Kalibratoren und Kontrollmaterialien, nicht jedoch Analyzer) auf Produktprobleme, damit verbundene Risiken und Art der FSCA.

Methods: Es erfolgte eine Analyse der vom BfArM 2014 bis 2023 auf der Homepage (http://www.bfarm.de/DE/Medizinprodukte/riskinfo/kundeninfo/functions/kundeninfo-node.html) publizierten FSCA und FSN.

Results: Es fanden sich 84 FSCA (mult. Entries; TnI: 23, CK-MB: 20, NT-proBNP: 15, Myoglobin: 14, BNP: 7, TnT: 6, HBDH: 2, proANP: 1, D-Dimer: 12). Häufigste Produktprobleme waren (multiple Entries; Herz/Lunge) falsch-hohe/ falsch-positive (27/2), falsch-niedrige/falsch-negative (18/10) allgemein fehlerhafte (15/0) und ungültige/fehlende Testergebnisse (6/0), Interferenzen (12/1), Stabilitätsprobleme (13/1), Kalibrationsfehler/-versagen mit falschen/fehlenden/verzögerten Testergebnissen (11/1) und Änderungen der Zielbereiche von Kontrollmaterialien/Kalibratoren (6/0). Typische korrektive Maßnahmen waren (mult. Entries; Herz/Lunge) Kundeninformationen (84, oft mit ausführlichen Maßnahmenempfehlungen (38/7) und Aussagen zur Retestung (empfohlen: 8/4, nicht erforderlich: 11/1)), Rückruf (33/9; Kundeninformation obligat), Änderung der Gebrauchsanweisung (16/2), Verkürzung der Produkthaltbarkeit (6/0), Änderung der Zielwerte von Kalibratoren/Kontrollmaterialien (4/0), Überprüfung und Änderungen der Produktion (4/0), Änderungen in der Testapplikation auf dem Analyzer (2/1, ggf. auch Software) und Materialänderungen (1/0).

Conclusions: FSCA zu Labortests für die Differentialdiagnostik Myokardinfarkt/Lungenembolie stellen eine wichtige Gruppe aller FSCA zu IVD dar. Typische Produktprobleme sind Werteabweichungen und falsch-positive/falsch-negative Werte und fehlerhafte Zielwerte von Kalibratoren und Kontrollen. Typische korrektive Maßnahmen sind Maßnahmenempfehlungen und Rückruf. FSN leisten bei FSCA einen wichtigen Beitrag zur Verminderung bestehender Produktrisiken.

P55

Predictors of success and complications in electromagnetic navigation bronchoscopy of peripheral lung lesions–a retrospective cohort study

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Background: We evaluated diagnostic performance and complication rate of electromagnetic navigation bronchoscopy (ENB) as well as predictors of outcomes in a single-centre cohort.

Methods: All patients having undergone ENB using a superDimension system at Kepler University Hospital Linz, Austria, between 2014 and 2022 were retrospectively registered. ENB was performed under general anaesthesia, standardized post-interventional follow-up included a chest X-ray after three hours. Severe complications were defined as pneumothorax or bronchial bleeding with need for intervention, procedure-related death or ICU admission. Success was defined as reaching the lesion within one centimetre of the predefined target and no need for further diagnostic intervention.

Results: A total of 238 separate ENB procedures in 231 patients were evaluated. The procedure was successful in 124 (52 %), the target lesion was reached but information obtained was insufficient in 98 (41 %) and the target lesion could not be reached in 16 (7 %) patients. Success was significantly associated with smoking history < 30 pack years (OR 2.51), lesion location in the middle (OR 3.9) or upper (OR 3.09) versus the lower lung third in the frontal plane and positive bronchus sign (OR 3.00). Pneumothorax occurred in 32 (13.5 %) patients, bronchial bleeding in 5 (2.1 %) and overall complication rate was 14.7 %. All 11 (4.6 %) severe complications were pneumothoraces requiring intervention. Predictors of increased complication rate were a location in the anterior (OR 4.32) or medial (OR 6.99) versus the posterior lung third in the horizontal plane, distance lesion to pleura under nine millimetres (OR 6.64) and low PET activity (OR 2.9).

Conclusions: Diagnostic performance of ENB was higher in patients with shorter smoking history, upper or middle frontal lung field localization and a positive bronchus sign. Complications occurred more frequently in lesions with low PET activity, vicinity to the pleura, and in the anterior or medial horizontal lung thirds.

P56

Machine-learning based BAL cytology of lung transplant patients

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Background: Long-term survival after lung transplantation (LTX) is limited by the poorly understood chronic lung allograft dysfunction (CLAD). Differential cytology of bronchoalveolar lavage (BAL) plays an important role in the follow-up of LTX recipients, as BAL neutrophilia and eosinophilia are known risk factors for CLAD development. We used a novel, machine-learning based BAL cytology computer vision (BAL-ML) model for the evaluation of differential cytology as well as of BAL cytospins.

Methods: More than 500 BAL cytospins of LTX patients were digitalized. A balanced training dataset was obtained by manual cell segmentation and labeling by two respiratory physicians independently. Furthermore morphological (sub-)phenotypes of neutrophil granulocytes and alveolar macrophages were defined.

Results: Preliminary BAL-ML models achieved a performance comparable to human interrater reliability in differential cytology. Macrophage, lymphocyte, neutrophil, and lymphocyte cell counts generated by the BAL-ML model and clinical reports correlated significantly ($R2 = 0.86$, $p < 0.001$; $R2 = 0.62$, $p < 0.001$; $R2 = 0.81$, $p < 0.001$; $R2 = 0.34$, $p < 0.001$; respectively). Cell count-derived neutrophilia between BAL-ML model and clinical reports reached a interrater reliability for neutrophilia (> 15 %) with a Cohens Kappa of 0.75, for lymphocytosis (> 15 %) of 0.46 and for eosinophilia (> 1 %) of 0.51, respectively. Moreover, morphological phenotypes of alveolar macrophages were significantly associated with CLAD.

Conclusions: BAL differential cytology by BAL-ML models is feasible and reliable. In the future, phenotypic analysis of BAL cell types could provide additional value and perhaps lead to novel biomarkers in the follow-up of LTX recipients.

P57

Comfort of Patients undergoing Bronchoscopy with Sedation or General Anesthesia–Pilot Project

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Background: *Introduction*: From no sedation to general anesthesia, there are various practice styles of bronchoscopy around the world, depending on many factors, such as the presence of an anesthesiologist in the operating room, experience, costs and duration of the procedure.

Aims and objectives: To evaluate the difference in patient's satisfaction following bronchoscopy under sedation versus general anesthesia assessed on specific questionnaires.

Methods: Questionnaires assessing patients' satisfaction (scale from 1:totally unsatisfied to 10:totally satisfied) after the procedure, anxiety (visual scale from 1:very anxious to 5:not anxious at all) before and after the procedure and cough (scale from 1:no cough at all to 10:unbearable coughing) after the procedure have been collected from 3 Respiratory Departments.

Results: So far, we have collected data from 84 procedures, 42 under sedation and 42 under general anesthesia. 54 of these were EBUS and 30 were Bronchoalveolar Lavage. 59.5 % of our patients were male with a median age of 65.5 (57.3–74.8) and 27 % of them had at least one prior bronchoscopy. Before and after the procedure 46.5 % vs 36.9 % of our patients respectively had a mild to moderate level of anxiety, while 28.6 % vs 53.6 % of them respectively were no anxious at all. The level of satisfaction was high in 86.9 % of them and was not correlated with the type of anesthesia or the presence of anesthesiologist.

Conclusions: Patients' level of anxiety seems to be reduced after bronchoscopy, while their level of satisfaction is not associated with the selected type of anesthesia. This study is ongoing and the data will be presented on site.

P58

Evaluation of Expiratory Flow Limitation Using Oscillometry in a General Population: Comparative Analysis with Matched Controls

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Background: Conventional lung function measures are effort dependent and may be insensitive to changes, particularly in the peripheral airways where small airway disease may originate or manifest. Forced oscillometry technique (FOT) is a noninvasive, objective and effort-independent method to measure airway mechanics. The aim of this study is to evaluate the prevalence of expiratory flow limitations (EFL) in an adult general population.

Methods: Adults (≥ 18 years) from the population-based Austrian LEAD cohort with validated FOT (Resmon Pro Full, Restech Srl, Italy), spirometry and body plethysmography measurements were analyzed for EFL (within-breath difference in

reactance of the respiratory system >0.92 cmH2O·s·L^{-1}) [Aarli et al., Int J Chron Obstruct Pulmon Dis. 2017; 12: 2179–2188]. Matched subgroups (ratio 1:1) were generated based on similarities in age, height, weight and BMI. The two groups were compared by lung function and volume measurements, diagnosed lung diseases and symptoms.

Results: From a total of 7333 adults, 7.4 % (n=543) showed EFL, of whom 54 % were female and 46 % male, with a median age of 64 years. EFL percentage was higher in participants of age ≥50 years with 12.9 % compared to 2.7 % in <50 years of age. Comparison with the matched subgroup resulted in significant differences with lower values in the EFL group for FEV1, FVC and MMEFs (p<0.001), and higher values for minute ventilation during FOT and residual volume (p<0.001), whereas total lung capacity was similar (p>0.9). A >3-fold percentage of COPD, asthma and hyperinflation were observed in the EFL group.

Conclusions: Participants with EFL evaluated by FOT showed impaired spirometric expiratory patterns, signs of hyperinflation with higher prevalences of COPD and asthma.

P59

Prognostic implications of 18F FDG-PET/CT-derived volume-based quantitative biomarkers in pulmonary sarcoidosis

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Background: Sarcoidosis is a multisystemic granulomatous disease predominately affecting the lungs. The outcomes are highly variable making clinical management challenging. Limited data exist regarding the prognostic significance of 18F FDG-PET/CT in sarcoidosis. The aim of the present study is to evaluate the prognostic value of baseline volume-based quantitative biomarkers derived from 18F FDG-PET/CT.

Methods: From an institutional registry, 75 sarcoidosis patients with a 18FFDG-PET/CT scan performed at the time of initial diagnosis and availability of follow-up data for at least one year were selected. A composite progression endpoint was defined, comprising either a decrease in FVC>5 % or a decrease in DLCO>10 %, a worsening of radiological findings or increasing clinical symptoms leading to hospitalization or escalation of drug therapy. The metabolic volume (MV) of the thoracic and extrathoracic lesions caused by sarcoidosis were calculated with syngo.via® by Siemens Healthineers, using a standardized uptake value (SUV) threshold of 2.5. Additionally, the maximum SUV (SUVmax) was determined for these regions.

Results: Of 75 patients, 45 patients met the progression criteria while 30 patients showed remission, either on therapy or spontaneously. Thoracic (245.9 cm^3 versus 117.3 cm^3; p=0.002) and whole-body MV (290.7 cm^3 versus 142.5 cm^3; p<0.001) were higher in patients subsequently showing progression, while there was no significant difference for whole-body or organ-specific SUVmax values. The optimal cut-off value for thoracic MV was determined at 130 cm^3, with a sensitivity of 71.1 % and specificity of 53.3 % (p=0.033). For whole-body MV, the optimal cut-off value was 150 cm^3, with a sensitivity of 71.1 % and specificity of 56.7 % (p=0.016).

Conclusions: Volume-based biomarkers derived from F18 FDG-PET/CT were associated with disease progression in pulmonary sarcoidosis whereas SUVmax showed no prognostic implications.

P60

Missense variation in pulmonary hypertension associated with chronic obstructive pulmonary disease

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Background: The prevalence of pathogenic PAH genes has not been well studied in COPD associated PH (COPD-PH). We aimed to determine the prevalence of potentially deleterious and pathogenic variants in COPD-PH.

Methods: Whole genome sequencing (WGS) data was obtained from the Graz Pulmonary Hypertension in COPD registry (GRAPHIC). We used the WGS Annotator to assign potential pathogenicity to missense variants in 27 genes with putative evidence for PAH causality. We analyzed variants using the ClinVar database and evaluated them for predicted deleterious effects by SIFT, LRT, MutationTaster and MetaRNN algorithms. We applied a CADD score threshold ≥20 and a REVEL threshold >0.75. We only considered variants with a minor allele frequency of less than 1/10,000 (gnomAD v4.1.0 and BRAVO browser). COPD-PH was defined according to the ESC/ERS 2022 criteria.

Results: We enrolled 92 COPD participants across all GOLD spirometric grades, consisting of 38 females and 54 males with a median age of 68 (IQR:63–74), FEV1/FVC=59 (IQR:48.8–64.5), and FEV1=57.4 % (IQR:42–74), mPAP=35 mmHg, (IQR:26–44.5) PVR=4.8 WU (IQR=3.3–8), PAWP=10 mmHg, (IQR=8–13), CI=2.5 L/min/m^2 (IQR:2–2.8). None of the participants had known rare homozygous or heterozygous pathogenic variants of PH genes according to ClinVar. We identified 60 missense variants and found two variants of the *ATP13A3* gene (two patients), one variant in the *SMAD9* gene (one patient), one variant in the *GGCX* gene (one patient) and one variant in the *BMPR1B* gene (one patient) that fulfilled all *in silico* criteria of pathogenicity. The variants of *SMAD9* and *GGCX* have been reported in ClinVar as VUS.

Conclusions: In a well-phenotyped cohort of patients with COPD-PH, we identified five variants in PAH genes meeting *in-silico* criteria for pathogenicity. Further studies are needed to replicate these findings and to assess their potential functional impact.

P61

Transmission Electron Microscopy of Transbronchial Lung Cryobiopsy Samples in a Cohort of Fibrotic Interstitial Lung Disease Patients–Feasibility and Implications of Endothelial Alterations

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Background: Transbronchial lung cryobiopsy (TBLC) allows for bronchoscopic retrieval of high-quality lung biopsies in the diagnostic work-up of interstitial lung diseases (ILD). We performed additional transmission electron microscopy (TEM) of TBLC samples in patients undergoing routine evaluation of fibrotic ILD.

Methods: Patients undergoing TBLC during standard evaluation of newly diagnosed or deteriorated fibrotic ILD gave written informed consent to TEM evaluation of one TBLC specimen. These were fixed in a Karnovsky's type fixative, postfixed in OsO_4, en-bloc stained with phosphotungstic acid (PTA), and embedded in epoxy resin. Ultrathin sections were examined using a Zeiss LEO EM 910 microscope. Cryobiopsies and unfrozen excision biopsies from subpleural fresh lobectomy tissue of non-ILD lung cancer patients served as controls.

Results: Among 16 ILD patients with appropriate alveolar lung tissue available, TEM provided high-quality images with only minor cryoartifacts as compared to controls. The main TEM findings in ILD patients concerned capillary endothelial pseudopodia-like protrusions and inner surface defects, which were extensively present in four (25 %), moderately present in seven (43.8 %), and largely absent in five (31.3 %) patients. A higher degree of TEM endothelial abnormalities was associated with younger age, non-specific interstitial pneumonia pattern, higher broncho-alveolar lavage lymphocyte count, positive autoantibodies, and lower spirometry, diffusion capacity and oxygenation biomarkers.

Conclusions: While TEM evaluation of TBLC samples from fibrotic ILD patients is feasible and provides high-quality images, the observed microvascular alterations possibly related to systemic inflammatory diseases warrant further evaluation.

P62

Asthma control improves in Austrian severe asthma patients

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Background: The GAN Severe Asthma Registry, founded by German Asthma Net (GAN), is a prospective registry recording clinical parameters. A recent article described the baseline characteristics of severe asthma patients of participating Austrian centers. This article assesses changes in asthma control and lung function in the annual follow-up visits.

Methods: We analyzed all patients included in the GAN Severe Asthma Registry from participating Austrian centers.

Results: Follow-up visit data of years 1 and 2 were available for 130 and 91 patients, respectively. Follow-up visits of years 1 and 2 showed a statistically highly significant (p<.001) increase in mean FEV1 (mL) compared to baseline. All improvements exceeded the minimal clinically important difference of 230 mL. Both median ACT and ACQ-5 improved well beyond the minimal clinically important difference of 3 points ($p < 0.05$) and 0.5 points ($p < 0.001$), respectively, in follow-up visits years 1 and 2 compared to baseline visit. Relevant improvements in lung function and asthma control were limited to patients receiving monoclonal antibody treatments. Severe asthma monoclonal antibody treatment increased from 60.7 % at baseline visit to 71.8 and 73.9 % at yearly visits 1 and 2, respectively. Smoking history negatively impacted improvement in asthma control, but not lung function. Presence of a measurable T2 signal at baseline had no impact on changes of either asthma control of lung function.

Conclusions: This study provides the first Austria-wide longitudinal investigation of severe asthma patients. Asthma control and lung function improved well at 1 and 2 years after baseline. This improvement can be mainly attributed to an increased rate in monoclonal antibody treatments.

P63

A real-life cohort of antifibrotic–treated non-IPF progressive pulmonary fibrosis patients

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Background: Nintedanib is approved for the treatment in interstitial lung disease (ILD) with progressive pulmonary fibrosis (PPF). There is limited real-life data on nintedanib treatment for this indication and on the combined use of antifibrotic and immunomodulatory drugs.

Methods: This retrospective real-life study characterized all non-idiopathic pulmonary fibrosis (IPF) PPF patients diagnosed and treated at the Hospital District of Helsinki and Uusimaa.

Results: Thirty-one patients were identified with non-IPF fibrotic ILD fulfilling PPF criteria in the years 2022 and 2023. The most common diagnosis was connective tissue disease (CTD)-ILDs with thirteen patients (42 %), followed by fibrotic idiopathic nonspecific interstitial pneumonia (iNSIP) with ten patients (32 %). The most common radiological pattern observed was NSIP in 18 patients (58 %).

Among the 30 patients treated with nintedanib, six (20 %) had to permanently discontinue treatment due to side effects. Out of the 19 patients who continued to receive nintedanib at the end of the follow-up period and for whom the dose was known, nine (47 %) still received nintedanib at the full dose (150 mg twice daily) and ten (53 %) at the reduced dose (100 mg twice daily). Twenty-seven patients (87 %) were receiving immunomodulatory treatment at the time of PPF.

Conclusions: In our cohort both the underlying diagnoses and the immunomodulatory treatments received differed vastly from the phase III licensing trial. More patients received nintedanib at a reduced dose rather than full dose, despite limited evidence of its efficacy and effectiveness. This highlights a large gap in evidence and the need for additional real-life data.

P64

Resactable NSCLC patients receiving neoadjuvant chemotherapy plus nivolumab–real world data

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Background: Neoadjuvant therapies including immune-checkpoint-inhibitors are increasingly used in the treatment concepts for resectable non-small cell lung cancer (NSCLC). Data from clinical practice is necessary to obtain more information about the tolerability and effectiveness of these therapies.

Methods: We retrospectively investigated all patients who received neoadjuvant platinum-based chemotherapy in combination with nivolumab between 2022–2024.

Results: For this case series we identified 20 patients, with TNM stages (according to the staging criteria of the American Joint Committee on Cancer, 8th edition) IIB ($n=1$), IIIA ($n=13$), IIIB ($n=4$) and IV ($n=2$). Eleven patients were diagnosed with histological subtype of non-squamous cell carcinoma ($n=11$) and nine with squamous cell carcinoma ($n=9$). Eight patients were PDL1-negative, in one patient the PDL1 status is unknown. All twenty patients received neoadjuvant chemotherapy with nivolumab. In eighteen patients Carboplatin, and in two patients Cisplatin was used as chemotherapy backbone. From fifteen patients who underwent surgery, only one required a pneumonectomy, while the other patients were treated with lobectomy. Seven of fifteen patients who went through a surgical procedure showed a pathologic complete response, while five showed a partial response. In two patients, a higher tumor stage was detected postoperatively and in one case, the tumor stage corresponded to the stage before therapy. In three patients, planned surgery could not be performed due to functional inoperability, two patients refused surgical intervention and one patient is planned to undergo surgery in the next weeks.

Conclusions: In a real world setting of patients undergoing neoadjuvant chemo-immuno-therapy all patients showed good treatment response and tolerability. The preoperative therapy did not prevent the feasibility of surgery.

P65

Basic data from the sarcoidosis registry at the Medical University of Vienna

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Background: Sarcoidosis is an uncommon condition affecting various organ systems, including the lungs, liver, eyes, kidneys, skin, heart, brain, muscles, and bones. Previous studies suggest that gender influences the clinical manifestation of sarcoidosis.

Methods: We performed a retrospective study using data from 199 individuals enrolled in the Sarcoidosis Registry at the Medical University of Vienna. This data set included patients with sarcoidosis who were treated at the General Hospital of Vienna between the years 2022 and 2023.

Results: The mean age of the cohort was 52 years (± 13), equally divided between men and women. The mean age at diagnosis was 46 years (± 13). Almost half of the participants had a history of smoking (44.5 %), with a mean of 17.8 pack-years (± 14.4). On average, participants were overweight, with a mean BMI of 28.3 kg/m2 (± 6.5).

Pulmonary function tests showed obstruction in 13.5 % of cases. At enrolment in the sarcoidosis registry, radiological examination revealed sarcoidosis in lung stages 1, 2, 3 and 4 in 34 %, 46 %, 8.5 and 5.5 %, respectively. No radiological evidence

(stage 0) of sarcoidosis involvement of the lungs was found in 6 % ($n=7$) of all patients. The gender distribution of sarcoidosis stages showed a significant male predominance in stage 2 (46.0 %) and stage 4 (5.5 %).

Conclusions: This study provides the characterisation of sarcoidosis patients, mainly from Vienna, but also some patients from all parts of Austria.

P66

PIF NIS: Assessing PIF in patients with Asthma and/or COPD using DPIs in Austria–A Cross-Sectional, Observational Real-World Study

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Background: Dry powder inhalers (DPIs) are a commonly prescribed inhaler type for respiratory diseases, requiring patients to generate sufficient peak inspiratory flow (PIF) to ensure optimal drug delivery to the airways. However, there is currently limited information regarding PIF in real-world practice settings for asthma and COPD patients, which may lead to the prescription of devices that cannot be used properly by patients.

Methods: PIF NIS is a cross-sectional observational non-interventional real-world study conducted in Austria. Asthma and COPD patients who regularly use a DPI were included between July 2023 and March 2024. PIF was assessed using the In-Check DIAL G16 inhalation airflow training meter.

Results: The study included 128 asthma patients (mean age 56 ± 17 years; mostly GINA grade 1–3; 48 % active or ex-smokers; mean ACT score 20.0 ± 4.5) and 136 COPD patients (69 ± 10 years, mostly GOLD stage 2 and 3; 94 % active or ex-smokers; mean CAT score 15.8 ± 6.8). The mean PIF was 81 ± 26 L/min (asthma) and 70 ± 24 l/min (COPD). One % of asthma patients and five % of COPD patients did not reach the minimum PIF required and 14 % of asthma and 22 % of COPD patients failed to reach the optimum PIF for their device.

Conclusions: A considerable proportion of asthma and COPD patients cannot achieve the optimal PIF needed for effective drug delivery to the lungs. Some patients are not even able to generate the minimal PIF for their device which may lead to undertreatment of their disease. These findings highlight the importance of assessing PIF and suggest that selecting the appropriate inhaler type might be critical for the maintenance of a stable health condition in these patients.

OGTC FREIE VORTRÄGE ORAL PRESENTATIONS OF THE OGTC

V01

Optimizing prehabilitation for lung cancer surgery: The relationship between length and functional capacity improvements

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Background: Lung cancer was the second most common cause of death in Austria in 2020. Thoracic surgery is an important treatment option for lung cancer, and prehabilitation aims to prepare a patient for the physical stress of this surgery by increasing their functional capacity. No study has yet been done that investigates the optimal length of a prehabilitation program. To gain initial insights into how the length of a prehabilitation program influences improvements in functional capacity in lung cancer patients, this thesis summarizes and analyzes data from available research that applies a six-minute walking test (6 MWT) as a measure of change in functional capacity in a prehabilitation program.

Methods: A systematic literature review was undertaken, where relevant literature was identified by searching two databases (PubMed and PEDro). For the search strategy, keywords were derived from the research question using the PICO method. This analysis focuses on original research that used the 6 MWT to assess functional capacity. Papers were analyzed for information on participants, interventions, and 6 MWT distance. For critical appraisal, the PEDro scale was used.

Results: Five papers were analyzed. Four papers compared prehabilitation with usual care. One paper compared prehabilitation with rehabilitation. The populations studied were patients with all stages of non-small cell lung cancer. The prehabilitation interventions lasted from two to five weeks. Pre-surgical mean improvements in 6 MWT distances ranged from +14.9 to +45.1 meters.

Conclusions: We conclude that it is possible to improve a lung cancer patient's 6 MWT distance by a clinically relevant margin in two weeks or eight therapy sessions. The relevance of other factors, namely session intensity and density, are addressed as well. However, more data is needed to give a clear statement on how different lengths of preha-bilitation influence improvements in functional capacity in lung cancer patients.

V02

Austria's first non-intubated Video Assisted Thoracic Surgery (NiVATS) project–An Experience Report

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Background: Non-intubated video-assisted thoracic surgery (NiVATS) describes a minimally-invasive surgery without the need for muscle relaxation, intubation and controlled ventilation, thus maintaining spontaneous breathing. This innovative approach offers potential benefits such as reduced patient stress and a lower incidence of postoperative pulmonary complications compared to conventional VATS. The current literature outlines multiple strategies for conducting NiVATS. The team at Clinic Floridsdorf has launched Austria's first NiVATS program, aiming to develop its own approach and share the experiences.

Methods: The project was initiated by an interdisciplinary team that developed a comprehensive protocol. Patients were selected based on indications, inclusion and exclusion criteria. Each patient provided written consent after being fully informed. The anesthetic protocol included paravertebral blocks, preoperative lidocaine inhalation and intraoperative sedation using dexmedetomidine and remifentanil. The surgical procedures adhered to conventional VATS, following the clinic's established standards. All vital parameters were recorded pseudonymously. Descriptive analysis was carried out and the results were presented in the case-report series.

Results: The NiVATS protocol demonstrated success with no need for conversion to general anesthesia or thoracotomy. Although both lungs were ventilated spontaneously, hypoventilation with respiratory acidosis developed. The compromised oxygenation was compensated by increasing inspiratory O2 concentration. Postoperatively, blood gases normalized rapidly without mechanical respiratory support. The non-dependent lung was less collapsed than under mechanical one-lung ventilation, yet identification of target structures was still possible. The paravertebral blocks provided sufficient analgesia beyond the procedure, with only three patients requiring rescue opioid therapy postoperatively. Patients reported high satisfaction 24 h after the surgery.

Conclusions: For the first time in Austria, a NiVATS project of this kind was conducted successfully. The Floridsdorf-Concept allowed operations on all recruited patients while maintaining spontaneous breathing, confirming feasibility in an international comparison. Close cooperation among all involved departments led to high patient satisfaction with excellent analgesia and reduced postoperative opioid needs.

V03

Effects of neoadjuvant immunotherapy on perioperative outcome in patients after VATS resection

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Background: Neoadjuvant immunotherapy has become the standard of care in treatment of lung cancer. Many surgeons report local treatment effects such as fibrosis, which may increase the rate of intraoperative complications, conversion rates, postoperative complications and length of hospitalization. The aim of this study was to evaluate the changes in perioperative outcomes in patients who underwent anatomic VATS resection with or without neoadjuvant chemotherapy or immunotherapy.

Methods: Our centers' prospectively maintained database was queried for patients who underwent surgery for lung cancer. Patients who were treated between 01/2019 and 12/2023 were considered for further analysis.

Results: 479 patients were scheduled for anatomical VATS resection between 2019 and 2023. 52 patients received neoadjuvant treatment (23 with neoadjuvant chemoimmunotherapy and 9 with neoadjuvant immunotherapy). The median duration of surgery was 152 min and the median length of hospitalization was 6 days. While the duration of surgery was significantly longer after neoadjuvant treatment (158.8 vs. 171.5 min, $p=0.024$), there was no increase in postoperative complications or length of stay after neoadjuvant treatment. A total of 23 patients (4.8 %) were converted to open thoracotomy, without a significant difference between patients treated by neoadjuvant therapy or by primary surgery (8.3 % vs. 4.7 %, $p=0.298$). Conversion to thoracotomy resulted in a longer operation time, more perioperative complications and a longer length of stay.

Finally, neoadjuvant immunotherapy had no effect on perioperative outcomes (duration of surgery, conversion rate, length of stay and postoperative complications) compared to neoadjuvant chemotherapy alone.

Conclusions: In a well-established minimally invasive thoracic surgery program neoadjuvant immunotherapy has no impact on perioperative outcomes. Although the rate is low, conversions to thoracotomy have an impact on early postoperative outcomes.

V04

Resection of Non-Small Cell Lung Carcinomas in the Oligometastatic Stage–Retrospective Analysis

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Background: Malignant lung tumors, primarily non-small cell lung carcinomas (NSCLC), are a leading cause of cancer-related deaths worldwide. These tumors are often diagnosed at an advanced stage with distant metastases. „Oligometastasis," characterized by a limited number of metastases, may indicate less aggressive tumor biology. Literature suggests survival rates in the oligometastatic stage may improve with surgical treatment of the primary tumor and metastases.

Methods: This retrospective analysis included data from 121 NSCLC patients treated at the Clinical Department of Thoracic and Hyperbaric Surgery in Graz between 2003 and 2022. Oligometastasis was defined as ≤ 5 distant metastases in ≤ 3 organ systems. Primary endpoints were overall survival (OS) and progression-free survival (PFS). Data from 45 patients, including 19 oligometastatic patients, were analyzed using „R" to determine the impact of metastasis resection on PFS and OS.

Results: Patients without distant metastases had better OS and PFS across all subgroups except those with advanced lymph node involvement (N2/N3). For patients with advanced lymph node involvement or large primary tumors, metastasectomy showed a trend towards better OS: oligometastatic patients had an OS of 4.9 years compared to 3.1 years for those without metastases. Patients with minimal lymph node involvement (N0/N1) and smaller tumors (T0/T1/T2) did not show significant benefit from metastasis resection. Patients in the oligometastatic stage without metastasis resection showed higher PFS (1.0 years) compared to those who underwent metastasis resection (0.5 years). OS showed a trend towards better outcomes in the resected group (3.1 years) versus the non-resected group (2.8 years), though not statistically significant.

Conclusions: NSCLC patients with advanced lymph node involvement or larger tumors might benefit from metastasectomy. Patients with minimal lymph node involvement or smaller tumors do not benefit from metastasis resection. The role of local consolidative therapy in metastatic NSCLC is expected to grow. Further studies are needed.

V05

Postoperative Lobe Specific Lung Function after Anatomical Segmentectomy for Early-Stage non-Small Cell Lung Cancer

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Background: Anatomical segmentectomies are considered a new standard of care for patients with peripheral non-small cell lung cancer < 2 cm. However, no clinically relevant difference in postoperative preservation of FEV1% between the sublobar and the lobectomy groups was observed. It remains unclear whether the remaining segments of the operated lobe are functionally insufficient or other parameters might be more indicative of actual functional status. Thus, we aimed to explore quantification of remaining lobar function by SPECT/CT after anatomical segmentectomy.

Methods: We retrospectively investigated clinicopathological parameters, postoperative lung function and relative lobe specific quantification with SPECT/CT of patients who underwent anatomical segmentectomy for T1a-b N0 NSCLC between 2022–2024. Body plethysmography and SPECT-CT was performed at a median of 16 months postoperatively.

Results: Up to now 15 patients (male = 9, 60 %) after anatomical segmental resection of the lung were enrolled. The resected segments (S) were as followed: S1–3 of the left upper lobe, $n = 4$; S6, $n = 5$; S2, $n = 2$; S8, $n = 2$; S1–2 of the left upper lobe, $n = 1$; S3 of the right upper lobe, $n = 1$. The median ΔFEV1 was –10 % (range 21 % to –9 %), ΔFVC was 4.9 % (range 31 % to –12 %) and ΔDLCO was 7.8 % (range 34.3 to –12.9 %). The relative lobe specific quantification showed that the operated remaining lobe contributed a median of 13.6 % (range 4 to 22 %) to overall ventilation and 13.2 % (range 3 to 20 %) to perfusion. The inclusion of new patients is ongoing.

Conclusions: Lobe specific quantification demonstrated that the remaining lobes after anatomical segmentectomy were still adequately ventilated and perfused. Larger patient numbers and a direct pre- and postoperative comparison are required before definitive conclusions can be drawn. Other parameters indicative of functional status should be explored.

V06

Long Term Outcome and Prognostic Factors after Chest Wall Resection and Reconstruction

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Background: Resection and reconstruction of tumors involving the chest wall are technically challenging and adequate surgical technique is a crucial factor for good perioperative and long-term outcome. Additional prognostic factors are needed to guide treatment-algorithms.

Methods: A retrospective analysis of consecutive tumors requiring chest wall resection and reconstructions 2010–2023 was conducted. OS and DFS were analyzed using Kaplan-Meier-method and log-rank-test. Uni- and multivariable analyses for prognostic factors for DFS and OS were performed.

Results: 148 patients (70 females; median age 62 years (IQR 51–68) were operated during the observation period. 88 % were malignant. 75 % of patients received perioperative systemic therapy or radiation. Median tumor diameter was 10 cm (IQR 7–15). Rib-resection only was performed in 99 cases, additional sternal-resection in 26, spine in 17 and clavicle/scapula in 6 cases. Additional resections were lung ($n = 75$), diaphragm ($n = 6$), pericardium ($n = 2$), subclavian vein ($n = 2$), pulmonary artery ($n = 1$) and multiple structures ($n = 22$). Synthetic ($n = 89$), metallic ($n = 6$) and material combinations ($n = 32$) were used for reconstruction. Biological flaps were used in 24 patients (15 muscle-flap, 6 pedicled myocutaneous-flaps, 3 free myocutaneous-flaps). R0 resection was achieved in 86.5 %. Complications occurred in 24.3 %. 30-day-mortality was 2.1 %. Median LOS was 8 days (IQR 7–12). Local recurrence developed in 9.5 %. Median DFS and OS was 890 and 1212 days. 5-year-DFS and -OS was 50.1 and 57.7 %. Resection of multiple additional structures reduced OS to 32.5 %, while in patients with no or single addi-

tional structure resections 5-year-OS was 62.9 and 61.5 %, respectively (Long-rank $p=0.017$). Multivariable analysis showed histology and R0 as independent prognostic factors for recurrence. Age, maximum tumor-diameter, and postoperative complication were prognostic factors for OS.

Conclusions: Resection of additional multiple structures in chest wall resection doesn't increase perioperative risk for morbidity or mortality, however, is a negative prognostic factor for 5-year survival. Additionally, tumor-size, age and postoperative complications are independent prognostic factors for 5-year-survival.

V07

Initial experience with remote ECMO implantation as bridge-to-lung transplant or bridge-to-decision

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Background: Extracorporeal membrane oxygenation (ECMO) often remains the only life-saving intervention for patients with end-stage lung disease experiencing severe cardiorespiratory failure, acting as bridge-to-recovery, bridge-to-decision, or bridge-to-transplant. However, ECMO resources are frequently centralized in larger hospitals with dedicated intensive care and thoracic surgery units. Therefore, several countries have established programs to facilitate remote ECMO implantation using mobile devices, allowing stable patient transport to these facilities. This study presents the first experience with remote veno-venous ECMO (vvECMO) implantation for patients with acute respiratory failure in Austria.

Methods: Patients with acute respiratory failure, deemed potential lung transplant candidates, and located at institutions without possibility for ECMO support, were considered eligible. A protocol was developed allowing for structured ECMO implantation and transport between hospitals. We retrospectively report our initial experience from April 2020 to May 2024.

Results: Six patients in respiratory failure due to Covid 19--ARDS ($n=1$), exacerbation of interstitial lung disease ($n=4$), and COPD ($n=1$) were included. vvECMO cannulation was performed at the remote intensive care unit, using dual-lumen cannulas in the right jugular vein ($n=4$) or conventional femorojugular cannulation ($n=2$). Three patients were awake during implantation, whilst three were sedated and ventilated. Patients were transported to our facility via helicopter ($n=4$) or ambulance car ($n=2$) over a median distance of 75 km (range 7–614). ECMO implantation and transportation were carried out without complications or adverse events. After a median ECMO runtime of 9.5 days (range 4–36), three patients deceased, one recovered, and two underwent double lung transplantation. Both transplant patients are currently still alive.

Conclusions: Herein we demonstrate the feasibility for safe remote vvECMO implantation and subsequent transport to specialized treatment facilities for patients with respiratory failure. Further protocol standardization in collaboration with other institutions could enhance ECMO indication and timing for critically ill patients at hospitals without direct access to ECMO resources.

V08

Introduction of the Updated ESTS Thymic Database: Enhancements and Initial Outcomes

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Background: The European Society of Thoracic Surgeons (ESTS) Thymic Database, part of the ESTS registry, compiles data on patients with thymic epithelial and neuroendocrine tumors. This web-based, prospective database contains the largest number of patients with thymic malignancies worldwide collected by 23 clinics across 11 European countries, Canada and Brazil. Refinements in multimodal treatment approaches and data contribution compliance mandated an update of the database structure.

Methods: The ESTS has launched an updated beta version of the ESTS Thymic Database. This project facilitates a more precise recording of perioperative systemic therapies, including chemotherapy, immunotherapy as well as targeted treatments and radiotherapy, including gamma knife procedures. Preoperative data collection has been refined to include more detailed risk criteria, and intraoperative documentation captures more details on resected structures, surgical parameters, and a dedicated robotic surgery section. Furthermore, the new database integrates calculation models for current TNM staging, aiming to streamline data entry and to minimize user bias.

Results: Since its release, the beta version of the updated ESTS Thymic Database has documented 235 patient entries, with improved data completeness (mean 75.2 %, range 40–100 %) compared to the previous version (mean 66.8 %, range 16.3–97 %). Notable improvements in data completeness were observed for the diagnosis of paraneoplastic autoimmune syndrome (98.7 % vs. 84.2 %), tumor size assessment (68.1 % vs. 56.5 %), final pathologic resection status (92.8 % vs. 83.6 %), and final pathologic diagnosis (97.0 % vs. 91.4 %). Chemotherapy data completeness improved from 16.3 to 80 %, and surgical approach data from 82.1 to 87.2 %.

Conclusions: Participation in the ESTS Thymic Database is highly encouraged. In a rare disease such as thymic tumors, international collaboration is mandatory to be able to enhance patient treatment based on prospective data of a sufficiently large patient cohort. The final version of the updated ESTS Thymic Database will be launched in July 2024.

V09

Clinical Outcomes Following Surgery in Sternoclavicular Joint Infections

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Background: Sternoclavicular joint infections (SCJI) are extremely rare, comprising less than 1 % of all septic arthritis cases. This study aims to evaluate the clinical outcomes of patients with SCJI treated surgically.

Methods: This retrospective study was conducted at the Division of Thoracic Surgery and Hyperbaric Surgery, Department of Surgery, Medical University of Graz, Austria. A total of 54 patients treated between January 2005 and December 2023 were included. Data on patient demographics, treatment methods, and outcomes were collected and analyzed.

Results: Fifty-three out of 54 patients (98.1 %) underwent surgery. Among these, 17 patients had intrapleural involvement (31.5 %), 15 had bacteremia (27.8 %), and 5 were septic (9.3 %). Debridement and negative pressure wound therapy (NPWT) were performed in 32 patients (59.3 %), and primary joint resection with flap closure in 5 patients (9.3 %). Muscle flap closure was performed in 17 patients after a median of 3.7 NPWT changes. Pectoralis major flaps were used in 22 patients (40.7 %). HBO therapy was provided to six patients (11.1 %), resulting in a median hospital stay of 26 days. Positive cultures were obtained from abscess samples in 34 patients (63.0 %), with Staphylococcus aureus being the most common pathogen. Risk factors included diabetes mellitus (38.9 %), renal insufficiency (5.6 %), and intravenous drug use (5.6 %). Postoperative complications occurred in 6 patients (11.1 %), and no 30-day mortality was observed.

Conclusions: SCJI is a rare but serious condition requiring prompt surgical intervention. Combining surgical resection with NPWT and myocutaneous flap techniques yields favorable outcomes. HBO therapy serves as a valuable adjunct for enhancing wound healing in selected patients. This multidisciplinary approach effectively manages SCJI, minimizing recurrence and complications.