

**COPD
2024**

**WORLD CONGRESS ON
COPD AND PULMONARY
DISEASES**

**DECEMBER
05, 2024**

**Virtual
Event**

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Our Keynote Speakers



Adem Sav
Queensland University of
technology
Australia



John Klir
American University of Bar-
bados School of Medicine
Barbados

Thank You All

**KEYNOTE
PRESENTATIONS**

DECEMBER
2024 5

Adem Sav

Queensland University of technology
Australia



Treatment burden priorities of COPD patients, carers, and respiratory physicians during clinical consultation

Abstract:

Many people with COPD often feel overwhelmed by treatment burden, which refers to the negative experiences associated with the additional effort required to follow a treatment plan. Although there is recent research on how COPD patients experience treatment burden, most of what we know is focused on patients' personal experiences. Our study aimed to identify and prioritize areas of treatment burden that should be discussed during clinical consultations. We collected data from participants using the nominal group technique (NGT), which allows for the development of many ideas. We conducted five nominal group sessions in total (n = 31); three sessions with patients (n = 18), one with carers (n = 7), and another with respiratory physicians (pulmonologists or chest physicians) (n = 6). Each session was recorded and analyzed using thematic analysis. We found that patients prioritize receiving more education and information, difficulties accessing healthcare, and worry about COPD treatment and prognosis. Respiratory physicians prioritize burdens associated with accessing healthcare, followed by education and information. Carers prioritize worry about COPD treatment and prognosis, the need for education and information, and their own needs. Despite these differences, all groups agreed that difficulties accessing healthcare, lack of education and information, and worry about COPD treatment were the most important treatment burden priorities for discussion.

Biography

Adem Sav is a Senior Lecturer and Discipline Lead for Health Safety and Environment programs within the School of Public Health and Social Work at Queensland University of Technology. Adem completed his PhD in 2011 and is a recognized leader in policy and systems approaches to health, particularly focusing on a setting approach. He has a special interest in psycho-social factors at work and the system/policies needed to make the workplace a healthier setting for key populations. In recent years, his work has increasingly focused on health service delivery and patient-centred care for people with chronic health conditions.

**ORAL
PRESENTATIONS**

DECEMBER
2024 5

Nilay Solanki

Charotar University of Science and Technology
India



Combating Doxorubicin-induced kidney injury through adenosine receptor modulation: An in-vivo study

Abstract:

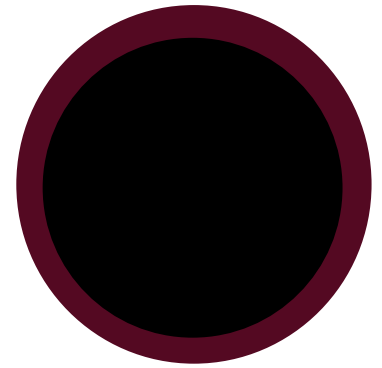
Doxorubicin (DXR) is a powerful chemotherapeutic drug commonly used to treat cancers such as breast cancer, bladder cancer, Kaposi's sarcoma, and lymphoma. However, its clinical use is often limited by severe side effects, including cardiomyopathy, bone marrow suppression, and nephritis. While the molecular mechanisms of DXR are complex, the specific cause of DXR-induced nephropathy remains unclear. This study focused on exploring the involvement of Vascular Endothelial Growth Factor (VEGF) and Nitric Oxide (NO) in DXR-induced nephropathy. It proposed that Adenosine-2 receptors (A2AR) might play a role in modulating VEGF and NO levels, potentially reducing renal damage. To investigate this, the study examined the effects of A2 receptor modulators on mice with DXR-induced nephropathy, evaluating VEGF and NO levels alongside renal function markers. The results showed significant improvements in kidney function, albumin clearance, BUN levels, and NO/VEGF levels in treated groups compared to those with untreated DXR-induced nephropathy. These findings suggest potential therapeutic strategies for mitigating DXR-induced nephropathy and provide new insights into the regulatory role of the NO-VEGF axis in renal function. Furthermore, this research may have broader implications for managing diabetes and related complications, where similar pathways could be targeted for therapeutic benefit.

Biography

Nilay Solanki is an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT Campus, India. He had completed his Ph.D. in 2016 from CHARUSAT University. Dr. Nilay has over 16 years of academic, research, administrative and leadership experience in the field of Pharmaceutical sciences & Pharmacology. His expertise is in the area of clinical research and preclinical animal model development of various disease conditions, with a special emphasis on diabetes, cancer, NAFLD, obesity, neurodegeneration, etc. He also works in the clinical research area such as pharmacoepidemiology, pharmacogenomics, and health-related quality of life assessment for various disease conditions. Dr. Nilay has several collaborations with multispecialty hospitals in Gujarat, where major clinical studies were conducted. Dr. Nilay has published over 50 research, review papers & book chapters in Scopus and Web of Science-listed high-impact factor journals with Q1, Q2, Q3 quartiles. He has also completed multiple consultancy projects. He had received various awards at national conferences and CHARUSAT research paper awards for five consecutive years. He had also provided his services as a resource person at national and international conferences in India. He is also associated as a reviewer and editor in national and international journals.

Khadeijah Almarshoodi

EHS
UAE



An International validation of the “DECAF score” to predict disease severity and hospital mortality in acute exacerbation of COPD in the UAE.

Abstract:

The DECAF score (the Dyspnoea, Eosinopenia, Consolidation, Academia, and Atrial fibrillation score) has been adopted in some hospitals to predict the severity of Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD). However, DECAF score has not been widely evaluated or used in Middle Eastern countries. The present study aimed to validate the DECAF score for predicting in-hospital mortality in patients with AECOPD in the United Arab Emirates (UAE). This was a retrospective, observational study conducted in 19 hospitals in the UAE. Data were retrieved from the electronic records of patients admitted for AECOPD in 17 hospitals across the country. Patients aged more than 35 years who were diagnosed with AECOPD were included in the study. The validation of the DECAF Score for inpatient death, 30-days death, and 90-day readmission was conducted using the Area Under the Receiver Operator curve (AUROC). The AUROCDECAF curves for inpatient death, 30-days death, and 90-day readmission were 0.8 (95% CI: 0.8-0.9), 0.8 (95% CI: 0.7-0.8), and 0.8 (95% CI: 0.8-0.8), respectively. The model was a satisfactory fit to the data (Hosmer–Lemeshow statistic=0.195, Nagelkerke R²=31.7%). There were significant differences in means of length of stay across patients with different DECAF score ($p=0.008$). Patients with a DECAF score of 6 had the highest mean length of stay, which was 29.8 ± 31.4 days. Patients with a DECAF score of 0 had the lowest mean length of stay, which was 3.6 ± 2.0 days. The DECAF score is a strong predictive tool for inpatient death, 30 days mortality and 90-day readmission in UAE hospital settings. The DECAF score is an effective tool for predicating mortality and other disease outcomes in patients with AECOPD in the UAE; hence, clinicians would be more empowered to make appropriate clinical decisions by using the DECAF score.

Francesco Marotta

ReGenera R&D International for Aging Intervention
Italy



Anti-inflammatory and lung epithelial functional recovery effect of a novel Phytomarine Senolytic against lipopolysaccharide- induced pulmonary injury mimicking COPD

Abstract:

Aim: This study deals with the induction of LPS-induced COPD animal model and treating this condition using a novel Phytomarine Senolytic PS compound (Bloomin'Age, Science of Living, Milan Italy) that had been previously shown in vitro to possess significant senolytic anti-inflammatory properties as well as vitagenes upregulator and (non tumorigenic) stem cell activation.

Methods: Mice received intra-nasally LPS (1 mg/ml/day) for 4 weeks followed by the oral administration of R-L compound (50 mg/kg body weight intermittently. Broncho-alveolar lavage fluids (BALF) as well as the lung tissues were collected from the control and experimental groups for histological examination. Likewise, the lung tissue homogenate was assayed for myeloperoxidase (MPO) assay, superoxide dismutase (SOD) activity and elastase assay. Concomitantly, SpO₂ was monitored during LPS induction and for 4 weeks later.

Results: LPS- induced mice showed an increased inflammatory cell infiltration with an acute and persisting neutrophilic accumulation in the lung parenchyma with alveolar congestion. The influx of macrophages, lymphocytes as well as inflammatory mediators was observed during the BALF analysis. PS compound treatment caused a significant decline in the permeation of inflammatory cells as observed by lung histology and BALF analysis. Interestingly, when stopping LPS there was no sign of SpO₂ recovery whereas PS-treated mice gradually normalised their values.

Conclusion: These data overall the robust anti-inflammatory/ antioxidant properties of PS and strongly suggested a functional lung epithelia functional regenerative capacity. Further studies may help understanding its potential as a therapeutic option in clinical setting.

Biography

MD, MS & PhD (Japan), MACG (USA). Fellow in gastroenterology at Chicago Univ., Univ. of Cape-Town. Fellow of Japanese Min. of Science at Natl. Cancer Center, Tokyo. Member of the Chinese Society of pancreatology, Molecular biology stage in UK and Korea. Hon. Research Professor Texas W University, USA and Visiting prof. Sichuan University, China and at major institutes worldwide. Has directed a research center in Japan and cooperated with (Nobel) Prof. Montagnier for 10 years. Has received 17 international awards, co-edited 2 successful books on aging-intervention and 15 book chapters on probiotics, functional foods, peptides and approaches for longevity promotion.

Umang Shah

CHARUSAT University
India



One-Pot multicomponent synthesis of novel Pyrazole-Linked Thiazolyl-Pyrazolines: Molecular docking and cytotoxicity assessment on breast and lung cancer Cell-lines

Abstract:

Cancer remains a leading cause of mortality worldwide, with nearly 20 million new cases and close to 10 million deaths reported in 2022. Lung and breast cancers are among the most prevalent and deadly types, necessitating novel therapeutic approaches. Using a one-pot, multicomponent reaction strategy, this study aimed to synthesize a novel series of pyrazole-linked thiazolyl-pyrazolines. Optimal reaction conditions were identified by varying different types of bases and altering temperature, time, and solvent. The reaction gave the best yield with NaOH base at 50 oC with 2h stirring in ethanol solvent. We characterized the synthesized compounds using IR, mass spectrometry, and NMR spectroscopy. Molecular docking studies showed that these compounds strongly bind to the ErbB4 kinase, which suggests that they could be used as kinase inhibitors. Compounds 5E, 5F, and 5G exhibited potent cytotoxic effects on breast cancer cell lines, while compounds 5A, 5B, 5D, and 5G showed potent effects on lung cancer cell lines. The study highlights the importance of pyrazole-linked thiazolyl-pyrazoline scaffolds in developing effective cancer therapeutics and underscores the need for continued research in this area.

Biography

Umang Shah working as an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT University, Changa. He had completed M.Pharm in Pharmaceutical Chemistry from The M.S. University of Baroda, Vadodara and Ph.D. in Pharmacy from CHARUSAT University. Dr. Shah has published more than 80 research/review articles and 02 book chapters and 10 books. Dr. Shah is one of the popular author of Pearson guide to Gpat book from Pearson Publication.

Hafsah Abdirahiim Maalim

Omdurman Islamic University
Sudan



Efficacy of Non-Invasive Ventilation in Patients with Chronic Obstructive Pulmonary Disease

Abstract:

Background: Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory disorder with persistent airflow limitation. Non-invasive ventilation (NIV) is used to manage acute exacerbations and improve chronic respiratory function in COPD patients.

Objective: To assess the role of NIV in preventing mechanical ventilation in COPD patients, analyze its impact on hospital readmissions and mortality and evaluate its effectiveness in improving quality of life for chronic hypercapnic respiratory failure.

Methodology: A systematic literature review was conducted across PubMed, MEDLINE, and Cochrane Library databases. Key outcome measures included blood gas improvement, quality of life, and survival rates. Inclusion and Exclusion Criteria Studies were included if they focused on COPD patients, adults over 18, and measured outcomes such as mortality, quality of life and hospital readmissions. Studies on pediatric populations or involving invasive ventilation were excluded.

Results: NIV significantly improved respiratory parameters, reduced hospital admissions, and mortality, and enhanced quality of life.

Discussion: The findings from this systematic review underscore the effectiveness of NIV in managing both acute and chronic stages of COPD. In acute settings, NIV has been shown to significantly reduce mortality, hospital admissions, and the need for intubation in patients with acute respiratory failure.

Conclusion: NIV effectively reduces mortality, hospital readmissions and improves quality of life in COPD patients especially during acute exacerbations. Its role in chronic care needs further exploration, particularly regarding patient adherence and long-term outcomes.

Biography

Hafsah Abdirahiim Maalim is a recent medical graduate from Omdurman Islamic University, and currently an intern in Thumbay Teaching Hospital Ajman, UAE. Hafsah is interested in pulmonology and internal medicine and published 3 papers in different journals.

Shikha Sharma

Sitaram Bhartia Institute of Science and Research
India



Effect of Inspiratory Muscle Training on Cardiac Autonomic Function, Exercise Capacity, and Dyspnea in Individuals with Chronic Obstructive Pulmonary Disease: A Randomized Controlled Trial

Abstract:

Background: The American Thoracic Society (ATS) documented chronic obstructive pulmonary disease (COPD) as a preventable and treatable respiratory disease. Its prevalence has increased globally making it the third leading cause of death. According to a meta-analysis, there is a 6.5%–7.7% prevalence of COPD in India. Among non-pharmacological strategies, pulmonary rehabilitation (PR) is the most beneficial treatment strategy. Even after the proven efficacy of PR, it remains underused across the globe. In developed nations, the estimated availability of the program is around 50%. In India, it is even poor.

Purpose: The primary and secondary objectives are to study the added effect of IMT in PR on CAF, exercise capacity, and dyspnea respectively in individuals with COPD.

Methods: This study is a single-blinded, parallel, two-group RCT. A total of 36 participants with diagnosed COPD were recruited based on the inclusion criteria from the Public health-care institution in India. Participants were randomly allocated using the 1:1 allocation ratio to one of the two groups: The experimental group (Group A) and the Control group (Group B). Group A performed IMT via threshold resistance IMT device with resistance $\geq 30\%$ P_Imax and conventional PR. Group B performed IMT with resistance $< 10\%$ P_Imax and conventional PR. A total of 24 sessions were provided for participants in both groups.

Results: The IBM SPSS statistics software version 21.0 was used for the data analysis. The data of Groups A and B was found to be homogenous using the Shapiro-Wilk test. The between-group comparison was performed using the independent t-test. It showed statistically significant improvements by the change in LFnu, RMSSD parameters of HRV, and change in 6MWD. Furthermore, the within-group comparison was performed using a one-sample t-test to witness statistical changes in the transition dyspnea index post-intervention.

Conclusion: The study concluded that adding IMT to conventional PR is effective in improving CAF and exercise capacity in individuals with COPD. In addition to this, statistically significant improvement was observed for dyspnea in Groups A and B irrespective of the resistance provided for IMT keeping the frequency, duration, and type of exercises in the conventional PR similar for both groups. As the disease has profound effects on the recruitment of diaphragm

muscle, we would recommend using the IMT protocol within the evidence-based PR program to study its effect on dyspnea, CAF, and Quality of life with a short of 3 months and a long follow-up of at least 1 year.

Implications: The emergence of PR as a treatment is evident in the literature on COPD. The paradigm of PR has shifted from peripheral muscle training (PMT) only to combined PMT with IMT. Literature has heterogeneous findings on the effectiveness of combined training. Thus, our work shall add to the current evidence. The effect of IMT and PMT on HRV is shown in fewer studies. Whereas, the effect of the combination of IMT with PMT lacks enough literature. Our study aims to overcome this gap.

Biography

Shikha Sharma is an accomplished cardiorespiratory physiotherapist based in New Delhi, India, with a passion for advancing healthcare in the realm of chronic respiratory conditions. She completed her Master of Physiotherapy (MPT) with a specialization in cardiorespiratory physiotherapy in 2024. Her thesis, titled “Effect of Inspiratory Muscle Training on Exercise Capacity, Dyspnea, and Cardiac Autonomic Function in Individuals with COPD,” showcases her deep interest in Chronic Obstructive Pulmonary Disease (COPD), pulmonary rehabilitation, inspiratory muscle training, heart rate variability, and exercise prescription. Shikha’s academic journey has been marked by exceptional national and international achievements. She earned widespread recognition for her research presentations at the Rehabilitation Research Colloquium in McGill, Ontario, and various International Physiotherapy Conferences. With an unwavering commitment to furthering her expertise, she plans to pursue a Doctorate of Philosophy (Ph.D.) in the field of cardiorespiratory physiotherapy, with the goal of contributing to cutting-edge research and improved clinical practices for patients with chronic pulmonary conditions.

Rayehe Noroozi

Shiraz University of Medical Sciences
Iran



Enhancing Justice in Financing Healthcare Expenses and Quality of Life Related to Health in Patients with Myocardial Infarction

Abstract:

Abstract: Introduction: Health research plays a crucial role in enhancing healthcare systems, making them better, fairer, and more accessible. The Commission on Social Determinants of Health in the Eastern Mediterranean has highlighted health inequalities, emphasizing social justice and health equity in its report, “Making it Fairer: Achieving Health Equity in the Eastern Mediterranean Region.” Aims: This report outlines actionable recommendations to improve the quality of life and health equity for people in the region. Results: Key Takeaways should be applied by the policymakers. 1. Aim for Equity 2. Focus on Universal Health Coverage 3. Investigation in Econometrics and economic equity 4. Financial Protection 5. Target Subsidy Law (TSL) in Iran: The TSL aimed to improve health financing equity, resulting in a significant increase in the Kakwani Index, though challenges remain with rising healthcare costs and access disparities. Conclusion: Addressing social injustice and ensuring equity in health financing is vital for improving health outcomes and quality of life for all individuals. Continuous research and policy efforts are necessary to tackle healthcare inequalities and achieve the goals set out in the 2030 Agenda. Together, we can work towards a healthier future for everyone.

Biography

Rayehe Noroozi (April 1999, Iran, Shiraz) is already a health Economics PhD Candidate in Shiraz University of Medical Sciences, Shiraz, Iran. Have gotten Diploma of science from Shiraz Governmental Genius school, started to study Bachelor and master of Health Administration at September 2017 and then at October 2021. She finished her bachelor thesis on Inequality in COVID vaccine distribution which is published as an article: “Inequality in the distribution of Covid-19 vaccine: a systematic review”. She has further research on mental and maternal health disparity later during higher education. “Most important thing in my life is to achieve my goals and help people with humanity, peace and health. I like communication with people and helping them out.” Says Rayehe as her mission statement

**POSTER
PRESENTATIONS**

DECEMBER
2024 5

Swetha Kannan

Gulf Medical University
UAE



A case of non specific interstitial pneumonia and granulomatosis as pathological findings due to an immune response to previous talc pleurodesis: A case report

Abstract:

This case report details a challenging case of a 36-year-old female with a history of Hodgkin's lymphoma treated with bleomycin, complicated by recurrent pneumothoraces managed with talc pleurodesis. Subsequent histopathological findings revealed non-specific interstitial pneumonia (NSIP) and granulomatosis, suggesting a potential link to talc-induced immune reactions. The patient's journey was marked by diagnostic uncertainty, including initial misdiagnoses such as pleuroparenchymal fibroelastosis (PPFE), prompting her to seek multiple consultations for clarity on her condition. Management strategies included steroid therapy and a trial of mycophenolate mofetil (Cellcept) to address her symptoms and potential immune-mediated complications post-talc pleurodesis. The case highlights significant diagnostic challenges posed by talc-induced ILD and emphasizes the importance of thorough histopathological evaluation and clinical correlation in such cases. This report advocates for expanded research into the immunological mechanisms underlying talc-induced ILD and underscores the need for longitudinal studies to assess the long-term implications of pleurodesis procedures. Such investigations are crucial for refining treatment approaches and improving prognostic outcomes for patients facing similar complexities. In conclusion, this case contributes to the evolving understanding of talc-associated pulmonary complications, urging continued vigilance and comprehensive management strategies to optimize patient care and outcomes in the face of talc-induced interstitial lung disease.

Biography

Swetha is a fourth year medical student in UAE. She has authored a book at the age of 18. She has published six medical papers and presented her papers at several international medical conferences.

**KEYNOTE
PRESENTATIONS**

DECEMBER
2024 5

John Klir

American University of Barbados School of Medicine
Barbados



Chronic Obstructive Pulmonary Disease: Role of cytokines and treatment optimization

Abstract:

Chronic obstructive pulmonary disease (COPD) is a slowly developing, progressive condition, characterized by basically irreversible changes resulting in long-term breathing difficulty, including shortness of breath, cough, and excessive sputum production. Airway obstruction results in persistent airflow limitation. Clinical phenotypes include chronic bronchitis and emphysema. The relative contribution of each differs between patients. Known causes include cigarette smoking, air pollutants, occupational exposure, and alpha-1 antitrypsin deficiency. A persistent inflammatory process involving activation of multiple types of immune cells and release of different pro-inflammatory cytokines, including interleukin (IL)-1 β , tumor necrosis factor (TNF)- α , interferon (IFN)- γ , IL-8, IL-17, IL-18, and IL-32, contribute to the development and progression of the disease. Resulting imbalances between proteases and antiproteases and between oxidants and antioxidants play important roles. Functional overlaps of different cytokines are due to high levels of pleiotropy and redundancy. In addition to commonly used treatments, such as smoking cessation, bronchodilators, steroids, oxygen, mucolytics, antibiotics, vaccinations, α -1 antitrypsin, pulmonary rehabilitation, and lung volume reduction surgery, new therapeutic approaches are needed to optimize the treatment based on specific pathophysiological disease phenotypes targeting specific pro-inflammatory mediators and associated inflammatory pathways.

Biography

John Klir is an MD/PhD medical scholar with broad experience of more than 25 years in academic medicine, biomedical research, clinical medicine, and administration. His research areas include immunophysiology, specifically the roles of pro-inflammatory cytokines in the pathophysiology of diseases. Dr Klir's work resulted in a significant contribution to the area of cytokine research, as evidenced by multiple publications.

**ACCEPTED
PRESENTATIONS**

DECEMBER
2024 5

Irfan Rahman

University of Rochester Medical Center
USA

Lung cellular senescence atlas, senescence biomarkers, and senolytic therapy in COPD

Abstract:

Environmental airborne pollutants and inhaled toxicants including climate change associated increased particulates, environmental tobacco smoke exposures, and wildfire/biomass smoke along with heat stress are involved in pathogenesis of several debilitating diseases and their exacerbations including Chronic Obstructive Pulmonary Disease (COPD). These exposures can cause oxidant/antioxidant imbalance and epithelial barrier junction dysfunction, leading to inflammatory responses and DNA damage, which are associated with cascades of cellular signaling and damaging effects. We have shown accelerated aging due to increased cellular senescence occurs in the pathogenesis of COPD using both SA-β-Gal staining and C12FdG staining in lung tissues. Interestingly, we observed highest cellular senescence in the parenchymal region from the lower lobes of COPD patients, thus proving that maximum damage is caused in the lower lung lobes during the disease progression. Initial analyses of scRNA seq data identified 19 distinct cell types in each of our experimental groups. We are further analyzing the scRNA seq data to identify specific markers for senescence that are correlated with COPD disease development and progression based on phenotypes. We further provided the insights into the cellular phenotypes during pulmonary conditions, and how polyphenolic compounds alters senescence (immunosenescence) mechanisms, and provide rationale for therapeutic targets (via senolytics/senotherapeutics/senomorphics) in this chronic lung diseases of aging. We will further discuss the involvement of CAR T cells, which are synthetic receptors that are capable of readdressing the specificity and other functions of T cells; which have been shown to be lost in many lung diseases, and possibly regulated by nutraceuticals impacting cellular senescence in COPD pathogenesis. Overall, we identified markers and single cell atlas of cellular senescence that are unique for patients with COPD, which could help in early diagnosis and efficient localized therapy based on cellular senescence using senolytics/senomorphics for this debilitating disease.

Biography

Irfan Rahman, PhD is the Dean's Professor of Environmental Medicine, Medicine (Pulmonary), and Public Health Sciences at the University of Rochester Medical Center (URMC) in Rochester, NY. He also serves as the Director of the Center for Flavoring Inhalation Toxicology. Dr. Rahman is renowned for his research in the field of environmental medicine, particularly in understanding the effects of inhaled toxicants, including e-cigarettes and flavoring agents, on lung health. His work has significantly contributed to public health knowledge and policy regarding inhalation toxicology and respiratory diseases.

Mohsen Abedi

Shahid Beheshti University of Medical Sciences
Iran

Implementation of a hospital-based exercise training program in pulmonary rehabilitation of patients with COPD

Abstract:

Pulmonary rehabilitation is an effective method to improve the clinical conditions of patients with chronic obstructive pulmonary disease (COPD), which can include providing a supervised exercise program at home or in a treatment center according to the patient's conditions and abilities. Despite the many benefits of pulmonary rehabilitation, it has not received much attention in different countries. Most current Pulmonary rehabilitation guidelines are for outpatients COPD and there are little studies about the implementation and effect of exercise training in inpatient COPD. Currently, there are few inpatient rehabilitation centers in the world. Considering the limitations in access to patients, and the importance of pulmonary rehabilitation in the treatment process of patients with COPD, in the present study we have presented the pulmonary rehabilitation protocol localized by Masih Deneshvari Hospital in Tehran, Iran

Qian Zhang

Nanjing Medical University
China

Association between Specific Gut Microbiota and Chronic Obstructive Pulmonary Disease: A Two-Sample Mendelian Randomization Study

Abstract:

Background: Growing evidence has suggested a critical relationship between gut microbiota (GM) and chronic obstructive pulmonary disease (COPD) based on the connection of the gut-lung axis. However, their causal connection has not been elucidated. This study aimed to investigate the causal relationship between GM and the risk of COPD.

Methods: Using a large-scale genome-wide association study database, a series of quality control steps were taken to select qualified SNPs that were strongly associated with exposure. Two-sample Mendelian randomization (MR) was used to evaluate the causal effect of GM on COPD, including inverse variance weighting (IVW), MR-Egger, weighted median, weighted mode, and simple mode. MR-Egger intercept tests, Cochran's Q test, MR-PRESSO global test, and "leave-one-out" sensitivity analyzes were applied to assess horizontal pleiotropy, heterogeneity, and stability.

Results: Based on extensive genetic data obtained from genome-wide association studies (GWAS) involving 468475 European participants, this work offered evidence that several gut microbial taxa were associated with COPD. IVW results confirmed that class-Clostridia ($P=3.71\times 10^{-2}$), genus-Haemophilus ($P=2.55\times 10^{-3}$) and genus-Streptococcus ($P=4.28\times 10^{-2}$) were associated with the risk of COPD. Analyses of heterogeneity ($P>0.05$) and pleiotropy ($P>0.05$) analysis confirmed the reliability of MR results.

Conclusion: We verified the possibility of a causal link between certain GM taxa and COPD, thereby highlighting the connection of the gut-lung axis. Further investigations into their correlation are necessary and will contribute to the discovery of novel biomarkers for targeted preventive strategies against COPD.

Biography

Qian Zhang received his Ph.D. degree in Pulmonary Medicine from Nanjing Medical University, Nanjing, P.R. China. In 2010, he worked as a visiting scholar in the department of internal medicine at Far Eastern Memorial Hospital, Taiwan. From 2011 to 2016, he worked as a postdoctor in Nanjing General Hospital of Nanjing Military Command, Nanjing, Jiangsu Province, P.R. China. Currently, he is working as chief physician, professor and director in the department of respiratory medicine at Changzhou No.2 People's Hospital affiliated to Nanjing Medical University. He is interested in pulmonary medicine, critical care medicine, molecular biology, allergy and immunology.

Qian Zhang

Nanjing Medical University
China

RNA sequencing uncovers lncRNA-immunity/hypoxia related mRNA-circRNA interactive relationship in patients with combined allergic rhinitis and asthma syndrome

Abstract:

Background: Combined allergic rhinitis (AR) and asthma syndrome (CARAS) is the concurrent clinical or subclinical allergic symptoms of the upper respiratory tract and lower respiratory tract. A deeper understanding of the immunity/hypoxia related mRNAs and related long non-coding RNA (lncRNA)/circular RNA (circRNA) expression changes can help to understand disease mechanisms of CARAS.

Methods: A total of 9 subjects, including 3 CARAS patients, 3 AR patients, and 3 normal control subjects were included. lncRNA sequencing was performed followed by identification of differentially expressed lncRNAs, immunity/hypoxia related mRNAs and circRNAs. lncRNA-mRNA and circRNA-mRNA regulatory pairs were constructed, followed by functional analysis, immune infiltration analysis, drug prediction and in vitro validation.

Results: Keratin 8 (KRT8) may predict the development of AR into CARAS. Three immunity related mRNAs (IDO1, CYSLTR2 and TEC) and 2 hypoxia related mRNAs (TKTL1 and VLDLR) were associated with the occurrence and development of CARAS. TEC may be considered as a drug target for Dasatinib in the treatment of CARAS. Two important lncRNA-mRNA-circRNA regulatory pairs were identified in CARAS, including LINC00452/MIR4280HG-CLC-hsa_circ_0007272/hsa_circ_0070934 and HEATR6-DT/LINC00639/LINC01783-TEC-hsa_circ_0008903. In addition, 4 lncRNA-mRNA regulatory pairs and 1 circRNA-mRNA regulatory pairs were screened out in CARAS, including RP11-167J8.5-VLDLR, OVCH1-AS1-OVCH1, RP11-71L14.3-IDO1/SMPD3, RP11-178F10.2-IDO1/HRH4, and hsa_circ_0008903-CYSLTR2. ECM receptor interaction (involving FN1) and the regulation of activated T cell proliferation (involving IDO1 and CLC and) were significantly enriched signaling pathways. Dysregulated levels of immune cell infiltration may be closely related to CARAS.

Conclusion: The regulating effect of lncRNA-immunity/hypoxia related mRNA-circRNA regulatory pairs may be involved in the occurrence and development of CARAS.

Biography

Qian Zhang received his Ph.D. degree in Pulmonary Medicine from Nanjing Medical University, Nanjing, P.R. China. In 2010, he worked as a visiting scholar in the department of internal medicine at Far Eastern Memorial Hospital, Taiwan. From 2011 to 2016, he worked as a postdoctor in Nanjing General Hospital of Nanjing Military Command, Nanjing, Jiangsu Province, P.R. China. Currently, he is working as chief physician, professor and director in the department of respiratory medicine at Changzhou No.2 People's Hospital affiliated to Nanjing Medical University. He is interested in pulmonary medicine, critical care medicine, molecular biology, allergy and immunology.

Yinebeb Mezgebu Dagnachew

Bahir Dar University
Ethiopia

Collagen Deposition in Lung Parenchyma Driven by Depletion of LYVE-1+ Macrophages Protects Against Emphysema and Loss of Airway Function

Abstract:

Recent studies demonstrated that the specific depletion of LYVE-1+ macrophage in LYVE-1wt/cre; Csf1rflox/flox mice leads to the deposition of collagen in the arterial wall and its stiffening. We hypothesized that LYVE-1+ macrophages may also regulate collagen content in the lung.

Bright field and polarized light microscope were used to estimate the total amount and thickness of collagen, respectively. Immunofluorescent staining and confocal imaging were used to analyze the type of collagen. Sircol collagen assay was also used to support the microscopy results. Gelatin Zymography was used to examine MMP-9 activity. Lung function test was measured by whole-body plethysmograph, which is connected to a computer-controlled ventilator.

Loss of LYVE-1+ macrophages was associated with high amount of collagen in the lung parenchyma and around bronchioles. By using quantitative sircol collagen assay and polarized light microscope we found that LYVE-1wt/cre; Csf1rflox/flox mice have more cross linked collagen compared to the Csf1rflox/flox control mice. The gene expression level of MMP-9 was downregulated in LYVE-1wt/cre; Csf1rflox/flox mice & its activity was also significantly reduced compared to the WT mice as shown by gelatin zymography. Depletion of LYVE-1+ macrophages ameliorate key features of COPD like, bronchial thickening, emphysema & showed improved lung function after 2 months of cigarette smoking.

Our findings suggest that the presence of more collagen in the parenchyma, driven by loss of LYVE-1+ macrophages has protective effect against cigarette smoke induced emphysema.

Biography

Yinebeb Mezgebu has completed his PhD in 2023 from National University of Singapore, School of Medicine. He is currently senior lecturer and researcher in Bahir Dar University College of Medicine and Health Sciences, Ethiopia. He has published more than 10 papers in reputed journals.

SUPPORTING JOURNAL

Journal of Pulmonary and Respiratory Diseases

<https://www.scitechjournals.com/journal-of-pulmonary-and-respiratory-diseases>



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