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INTERNATIONAL CONFERENCE ON

# COPD AND ASTHMA

September 22, 2021

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COPD 2021

BOOK OF ABSTRACTS

# INTERNATIONAL CONFERENCE ON

# COPD AND ASTHMA

SEPTEMBER 22, 2021

**Theme:**

Exchange questions, answers and best practices in the field of COPD and Asthma

# INDEX

# *About* MAGNUS GROUP

**Magnus Group (MG)** is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

# *About* COPD 2021

Magnus Group welcomes members from different parts of the world to join our Online Event - "International Conference on COPD and Asthma" scheduled during September 22, 2021. It includes prompt Keynote presentations, Oral presentations, Poster presentations, interactive and informal exchanges. This is going to be one of the most remarkable events of the year. Through the theme "Exchange questions, answers and best practices in the field of COPD and Asthma" conference will explore the advances in the field. COPD 2021 goal is to bring together bright minds to give talks that are ideas-focused, and on a wide range of scientific sessions, to faster learning inspiration. It will provide an international platform to share expertise, foster collaborations, discover new information, stay current with trends and networking.

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# KEYNOTE FORUM

DAY 1

## International Conference on

# COPD AND ASTHMA

Sep 22, 2021

**Allen Fred Fielding**
Temple University, USA

## The EVALI (Vaping Associated Lung Injury) Epidemic

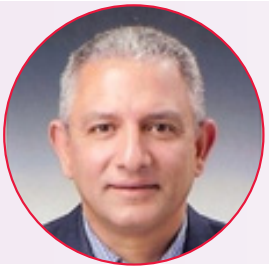
During the last five years a new epidemic has been increasing without the needed attention that is needed to control it. Teen Vaping has increased markedly from 2017 to tripling by 2020 and has been on the increase since. Interesting is the fact that in the middle of the year of 2017 in the United States a movement to ban the amount of nicotine in Vaping has been investigated. Not enough that any final decisions have been made. The Federal Drug Administration of the United States set a goal that would look into Vaping safety by September of 2021 but yet has not been able to reach a decision as 500 companies have submitted their data. The Altria Groups investment in Vaping has just recently been given notice with the new FDA administrators idea of making less nicotine content in Vaping allowable to become less addictive. Patient's symptoms of lung problems sometimes appear as if the patient had Covid and many misdiagnoses are made missing the treatment for EVALI and possibly leading to Bronchiectasis an irreversible disease. Nicotine is not the only problem with Vaping as the flavoring ingredients can also be problematic as diacety l,2,3-pentanedione although in the solid form as in butter but becomes problematic when heated as a vapor. Why do teenagers feel that this Vaping is not a consequence because peer pressure and Vaping advertisements do not show the real consequences of lung disease that can possibly happen. The present problem is that no long term studies have been done and the FDA has still to make any recommendations.

**Audience Take Away:**

- The problems of nicotine use
- The ages at which Vaping is started and its increase
- The harmful problems and products of EVALI

**Biography:**

Allen Fielding is a Professor of Oral and Maxillofacial Surgery and former Department Chair. He studied At Fairleigh Dickinson University where he received his degrees of BS and DMD. He went on to receive his MD in 2001 from the University of Antigua. Anel Basic graduated for Temple School of Dentistry in 2021 with a degree of DMD and is presently an intern in Oral and Maxillofacial Surgery at Vanderbilt University Medical Center.



**Ahmed Al-Jumaily**
Auckland University of Technology, New Zealand

## New trends of pressure oscillation in lung therapy

Lung therapies vary between pharmaceutical and physical treatments depending on the nature of the diseases. The latter has gained enormous applications in particular in managing airway constrictions such as during an asthmatic attack. Pressure oscillation (PO) is a form of acoustic/vibration waves superimposed on the breathing cycle and has been used as an innovative and effective way of treating several lung ailments including obstructive sleep apnea (OSA), asthma and respiratory distress syndrome (RDS). Various mechanisms in different parts of the lung can generate breathing difficulties. As an example, the main driving mechanism for the excessive airway narrowing during an asthma attack is the airway smooth muscles (ASM) hyperconstriction caused by the actomyosin cross-bridge cycling process. This process consists of an electrical stimulation triggering chemical activation followed by mechanical attachment/detachment between myosin and actin. This leads to lumen contraction and then respiratory bronchoconstriction. One of the main current pharmaceutical treatments is based on using beta products to target the chemical process and block the calcium channels for muscles relaxation. However, a series of in vitro experiments and in vivo trials have demonstrated that both tidal and superimposed length oscillations disturb the crossbridge cycling process and reduce the active force in contracted ASM (healthy and asthmatics) for a relatively long term. We further investigated the combined effects of bronchodilators and length oscillations on contracted isolated ASM, with the focus on the muscle conditions subsequent to treatment. This work suggests that relaxation subsequent to the application of combined bronchodilator and length oscillations is larger than the added effect of each one when applied alone. This study gives more insight into the role of bronchodilators and oscillations on contracted airways. It demonstrates that PO does trigger lung therapy technologies to improve lung compliance and inflammatory stresses, preserve surfactant function and relax contracted ASM.

**Biography:**

Ahmed M. Al-Jumaily, is currently a Professor of Biomechanical Engineering and the Founder and Director of the Institute of Biomedical Technologies at the Auckland University of Technology, Auckland, New Zealand. He holds a PhD and M.Sc. from the Ohio State University, USA and a B.Sc. from the University of Baghdad. He is a FELLOW member of the American Society of Mechanical Engineering (ASME) and the Acoustical Society of America; in addition a member of 11 more international professional societies. He is the Editor-in-Chief of the ASME Journal of Engineering and Science in Medical Diagnostics and Therapy, the Editor for the ASME monograph series-Biomedical and Nanomedical Technologies and has been on the editorial and refereeing boards for several international journals. He has published more than 360 papers in international journals and conference proceedings including two ASME books on Vibration and Acoustics in Biomedical Applications and a third one on CPAP devices. He has supervised more than 100 postgraduate students from 34 countries in biomedical applications, vibrations, biomechanics, and electroactive polymers. During his academic career, he has forged strong alliances between academia and industries; in particular, in the medical devices area, which has resulted in many successful grants and contracts with companies and research organizations. Al-Jumaily's current research focuses on biomedical applications, particular interest in the application of vibration and acoustics to airways constriction therapies and artery non-invasive diagnostics.

**Jordan B Minov**
Institute for Occupational Health of R. North Macedonia, North Macedonia

## COPD and workplace

Chronic obstructive pulmonary disease (COPD) is a major cause of disability and one of the leading causes of death throughout the world. Although the cigarette smoking is the major and the best studied causative factor of COPD, there is consistent evidence that a substantial proportion of COPD cases cannot be explained by smoking. Other noxious particles and gases, such as workplace dusts, gases, vapors or fumes, indoor air pollution from burning biomass fuels from cooking and heating and urban outdoor air pollution are important risk factors of COPD. Occupational COPD is defined as a form of COPD caused in whole or in a part by occupational exposures. According to the actual knowledge, 15-20% of COPD cases are like to be caused or made worse by work, around 4,000 COPD deaths every year are related to workplace exposures and 40% of COPD patients are below retirement age and a quarter of those below retirement age are unable to work at all. There are several ways by which the workplace exposures may influence the course of COPD, like causing COPD, modifying the effect of tobacco smoke in causing COPD, triggering COPD exacerbations, as well as accelerating the progression and severity of the disease in the subjects with established COPD. The development of COPD as a consequence of workplace exposure is a matter of growing interest and importance, and not a little controversy. There is no doubt that certain workplace exposures enhance the risk of COPD and may do so independently of or in concert with cigarette smoking. The evidence is most coherent for work that entails exposure to coal, silica, welding fume, cadmium fume, diesel exhaust, cotton dust, farming dusts, grain dust or wood dust. The research found consistent associations between workplace exposures and COPD, across a wide range of sectors, describing a nearly uniform pattern of exposure-response relationships. Based on the research, affected occupations include miners, construction workers, road workers, tunnel workers, welders, glass workers, metal workers, foundry workers, textile workers, farm laborers, wood workers, chemical workers, and rubber workers, i.e. a working population including millions and millions workers worldwide. Prevention, based on proper engineering controls, respiratory protective equipment and regular periodical medical examinations, must be the primary tool for decreasing morbidity, mortality and disability from COPD. In addition, the prevention of both smoking and workplace exposure is needed to prevent the development and progression of disease, i.e. the joint analysis of smoking and workplace exposures implies that elimination of one, but not the other, risk will not be fully effective for reducing the global burden of COPD.

**Biography:**

Jordan B. Minov, MD MSc PhD (1960, Skopje), specialist in internal medicine and occupational medicine, sub-specialist in pulmology and allergy, achieved his graduated and post-graduate degree at the Medical Faculty in Skopje.Employed at the Institute for Occupational Health of R. North Macedonia, Skopje. Full professor at the Medical Faculty in Skopje. Author of the monographs “Lung and Pleural Diseases Related to Occupational Exposures” (Skopje, 2009), “Spirometry” (Skopje, 2010), “Smoking among Macedonian Workers” (Saarbrücken, 2013), “COPD and the Workplace” (New York, 2016) and “Bronchiectasis in adults” (Skopje, 2018). Author of the chapter “Work-Related Asthma” in the e-book “Asthma” (Austin, 2016).

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SPEAKERS | DAY 1

INTERNATIONAL CONFERENCE ON

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SEP 22, 2021

**Sho Shibata**
Tokyo Medical and Dental University, Japan

## The role of basophils in the pathogenesis of COPD

Chronic obstructive pulmonary disease (COPD) is estimated to affect 174.5 million persons in the global population and is the fourth leading cause of death in the world. It has been generally considered as a non-Th2-type lung disorder, characterized by progressive airflow limitation with inflammation and emphysema, but its cellular and molecular mechanism remains ill-defined, compared to that of allergic asthma characterized by reversible airway obstruction. In a mouse model of elastase-elicited COPD, we identified an unexpected role for basophils, Th2 cytokine IL-4, and interstitial macrophages (IMs) in the pathogenesis of emphysema, in spite of the fact that basophils account for less than 1% of cellular infiltrates in the affected lung. Intranasal elastase instillation elicited the recruitment of monocytes to the lung, followed by differentiation into IMs but rarely alveolar macrophages (AMs). Matrix metalloproteinase (MMP)-12 contributing to emphysema formation was highly expressed by IMs rather than AMs in contrast to the prevailing assumption. Experiments using a series of genetically engineered mice suggested that basophil-derived IL-4, a Th2 cytokine, acted on lung-infiltrating monocytes to promote their differentiation into MMP-12-producing IMs that resulted in the destruction of alveolar walls leading to emphysema development. Indeed, mice deficient for IL-4 only in basophils failed to generate pathogenic MMP-12-producing IMs and hence develop emphysema. Thus, the basophil-derived IL-4/monocyte-derived IM/MMP-12 axis plays a crucial role in emphysema formation and therefore may be a new potential target to slow down the emphysema progression at the initiation phase of COPD.

**Biography**

Dr. Shibata graduated from Tokyo Medical and Dental University (TMDU), Faculty of Medicine in 2008. He then joined the research group of Prof. Karasuyama at the Department of Immune Regulation, TMDU. He received his Ph.D. degree in 2019 at the same institution. He obtained the position of Assistant Professor at TMDU. He is conducting research into the immunopathology of COPD.

**Po-Ching Huang*[1], Po-Jung Lee[2], Kun-Ling Tsai[1,2], Ching-Hsia Hung[1,2]**

[1]Institute of Allied Health Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan

[2]Department of Physical Therapy, College of Medicine, National Cheng Kung University, Tainan, Taiwan

# Effect of virtual reality resistance exercise in patients with Chronic Obstructive Pulmonary Disease: A randomized control trial

Exercise component in pulmonary rehabilitation benefits the Chronic Obstructive Pulmonary Disease (COPD) patients by improving the exercise capacity and health-related quality of life (HRQoL). However, patients with COPD were reported for their low motivation to participate in pulmonary rehabilitation programs. Muscle weakness is a common problem for patients with COPD. Compared to aerobic exercise, additional benefits were discovered on enhancing the muscle strength and respiratory muscle force in resistance exercise. Moreover, virtual reality (VR) as a technological device, has multiple advantages of rehabilitation that are suitable to improve the engagement of COPD patients. Therefore, the present study aims to investigate the effect of VR resistance exercise on patients with COPD. Eighteen patients with COPD whose aged between 40 to 85 were recruited and randomly allocated to the control group (n=11) and intervention group (n=7). Participants in control group received conventional treatment of health education of home exercise. Participants in the intervention group received health education of home exercise and physiotherapist supervised VR resistance exercise. The intervention was performed 3 times per week for 8 weeks (a total of 24 sessions) and the weight was gradually increased within sessions. The assessments of muscle strength, cardiopulmonary exercise test, health-related quality of life (HRQoL), perceived symptom severity, and program preference were used to evaluate the treatment effect. Eleven stage IV COPD patients were allocated to the control group, and 7 patients (4 stage III COPD patients and 3 stage IV COPD patients) were allocated to the intervention group. Baseline data of COPD stage (p=.011), forced vital capacity (p=0.017) and forced expiratory in one seconds/ forced vital capacity (p=.003) had significant differences between groups. Muscle strength of biceps (p=.001), triceps (p=.003) and anterior deltoid (p=.006) had significant improvement between groups. However, the change of characteristics of cardiopulmonary exercise test, HRQoL, perceived symptom severity and program preference showed no significant difference between groups. The present study suggested that improving the muscle strength of upper extremities shows insufficient contribution on exercise capacity, HRQoL and perceived symptom severity. In addition, the VR program designed by the research team also failed to improve the engagement of COPD participants. It is recommended that future studies investigated the resistance training should focused on the assessment of activity performance and daily participated level. As for the utilization of VR, close cooperation between physiotherapist and designer could surely reach the maximum benefits for COPD.

**Audience Take Away:**

- To gain knowledge regarding the effect of clinical intervention utilizing virtual reality to perform resistance exercise as pulmonary rehabilitation exercise program for patients with COPD.
- To have a basic concepts regarding the treating effect of resistance exercise for patient with COPD.
- To get a suggestion regarding the design of virtual reality programs.
- The information from the present study provides a research evidence for physicians on designing the exercise prescription for patients with COPD.
- The outcome from the present study also provides a practical suggestion for future studies aim to investigate the efficacy of utilizing VR in rehabilitation.

**Biography**

Ms. Po-Ching Huang majored in physical therapy at National Cheng Kung University, Tainan, Taiwan and graduated as MS in 2014. After work as a clinical physical therapist for 5 years, she applied for doctoral program in the institute of Allied Health Sciences, National Cheng Kung University and admitted in 2019. She joined the laboratory of cardiopulmonary physiology and her currently study topic focuses on the cardiopulmonary physical therapy for patients with COPD.

**Hamid Mcheick**
University of Quebec at Chicoutimi, Canada

## COPD healthcare system

Today, health system is reshaping the research in the medical domain due to its potential to concurrently overcome the challenges encountered in the traditional healthcare systems. Prediction of exacerbation of Chronic Obstructive Pulmonary Disease (COPD) is considered one of the most difficult problems in the medical field. Many issues face researchers in the medical domain, such as modelling context (risk factors) of a patient, uncertainty, accuracy of these factors and their relationship, and preventing exacerbation. These issues have been handled in may research projects. However, traditional treatment plan and non-fully automatic applications are still used. The goal of this research is to build reliable mechanism to improve life quality of COPOD patients.

**Audience Take Away:**

- How to protect the patients against the risk factors of CODP disease?
- How to choose an efficient treatment plan?
- How can we extend the lifetime of CODP patients?

**Biography**

Dr. Hamid Mcheick is a full professor in Computer Science department at the University of Québec at Chicoutimi, Canada. He has more than 25 years of experience in both academic and industrial area. He has done his PhD in Software Engineering and Distributed System in the University of Montreal, Canada. He is working on design and adaptation of smart software applications; designing healthcare framework for medical domain; and designing smart Internet of Things and edge framework. He has supervised many post-doctorate, PhD, master and bachelor students. He has nine book chapters, more than 60 research papers in international journals and more than 150 research papers in international/national conference and workshop proceedings in his credit. Dr. Mcheick has given many keynote speeches and tutorials in his research area. Dr. Mcheick has gotten many grants from governments, industrials and academics. He is a chief in editor, chair, co-chair, reviewer, member in many organizations (such as IEEE, ACM, Springer, Elsevier, Inderscience) around the world.

**Nazila Bahmaie*[1a,b,c,d], Abdolreza Esmaeilzadeh[2a,b,c*], Elham Nouri[3a,b], Mohammad Javad Hajkazemi[3c], Pourandokht Farhangian[3d,e], Nasim Mohammadi[3f], Mahnoush Bahrampour[3g]**

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[2a]Associate professor of Immunology, Department of Immunology, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
[2b]Immunotherapy Research & Technology Group, Zanjan University of Medical Sciences, Zanjan, Iran
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[3f]PharmD, Faculty of Pharmacology, Kerman University of Medical Sciences, Kerman, Iran
[3g]MSc Student of Nanobiomimetic, Faculty of Pharmacology Sciences, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran

## Lung cancer and covid-19 pandemic; Where do we stand in precision medicine?

From December 2019, a burgeoning rate of population have been involved in a highly contagious type of severe acute respiratory viral disorder identified with a new type of coronavirus in the Huanan seafood wholesale market of Wuhan, Hubei province, China. Due to the high rate of mortality and morbidity of Severe Acute Respiratory Syndrome related Coronavirus-2 (SARS-CoV-2) infection, needless to say the clinical importance of accurate and early diagnosis, as well as risk assessment especially in cases with predisposition disorders. It has been demonstrated that respiratory disorders play a contributing role in the exacerbated immunopathogenesis of COVID-19. Hence, in order to lessen high clinical and socioeconomical burdens of COVID-19 in immunocompromised patients with predisposition respiratory disorders, it seems that patients with lung cancer should not be underestimated. Patients with lung cancer may have disproportionately severe outcomes related to COVID-19, on the one hand. This point is addressed to more problematic challenges, including overloaded nosocomial

infections or comorbidities for hospitalized patients due to attenuated immune responses, falsified diagnosis, losing golden time for accurate diagnosis, and improper therapeutic regimens. These challenges can be more severe in the countries are the epicenters of the pandemic. Additionally, those with lung cancer are prone to COVID-19 with high susceptibility, imposing extortionate expenditure on health system. On the other hand, from immunological aspects, a comprehensive understanding on COVID-19-specific and lung cancer-specific clinical manifestations, and diagnostic approaches make a simplified optimization on risk assessment of both groups of patients. For instance, activated HIF-1 and NF-kB signalings lead to an exacerbated inflammation in COVID-19. Whereas, activated HIF-1 signaling facilitates immune escape and exacerbated tumor growth in patients with lung cancer. Of note, along with a serve lymphopenia, there is an aggravated cancer prognosis in patients with lung cancer (who are majorly immunosuppressed elderlies). Functionally-compromised T cells pave the path for higher incidence of COVID-19 and Acute Respiratory Distress Syndrome (ARDS) in patients with lung cancer. Results of immunophenotyping-based studies showed that aging-associated dysregulated immune responses progress microenvironment toward COVID-19 in elderlies. Notably, an impaired ability of lung DCs to migrate to mediastinal lymph nodes and prime SARS-CoV-specific CD8+ T cells due to aging is a determinant for COVID-19. Totally, inflammaging and immunosenescence can act as a two-edge sword for metastatic dissemination and enhanced susceptibility to COVID-19. Hence, here it is the exact time for immunological evaluations of the patients for clarification of the immune responses that may confer protection or induce adverse reactions to SARS-CoV-2 infection (right patients) in the shortest possible turnaround time (right time). In addition, we should be aware of anti-tumor, anti-neoplastic or chemotherapies that make patient with lung cancer more vulnerable to COVID-19 (right drug).

**Conclusion:** Screening for cases with lung cancer is of clinical significance for reaching at optimized medical interventions in COVID-19 pandemic. Thereafter, development of optimistic views for more scientific collaboration among Medical Microbiologists, Virologists, Immunologists, Oncologists, Pulmonary Diseases Specialists, Internal Medicine Specialists, Infectious Diseases Specialists, Basic Medical Scientists, Diseases-specific Biomarker Scientists, and Clinical Laboratory Scientists is highly recommended.

**Audience Take Away:**

- They learn to use precision medicine/personalized medicine for accurate clinical decisions.
- They are encouraged for more comprehensive immunological aspects of the diseases and comorbidities.
- They are encouraged for development of collaborations with a wide range of clinical specialists.

**Biography**

Nazila Bahmaie studied Medical Microbiology at the Zanjan University of Medical Sciences, Iran which was supervised by Dr. A. Esmaeilzadeh, and graduated as a MSc in 2016. She started her scientific collaborations since 2014. Now, she is a PhD candidate of Allergy and Immunology in Near East University, Northern Cyprus, currently working as a credited expert at the Comprehensive Medical Diagnosis Laboratory of the Baskent Hospital which is legally issued by Northern Cyprus Embassy. Her research interests mainly Immunology, Immunotherapy, Regenerative Medicine, Infectious Diseases, and Cancer with 14 scientific published articles and more than 10 in progress articles.

**Pooja M R**
Vidyavardhaka College of Engineering, India

## Analytics for intelligent healthcare systems

Intelligence has been an integral component of every aspect in all most all arenas of life. In the healthcare industry, the degree to which it has been impacted is comparatively low and the progress is in smaller steps when compared to those made in other fields. This can be attributed to several challenges and hurdles faced in healthcare systems. Adding to this, intelligence is not justified in beyond proof of concept studies. Recent years however have embraced hybrid models that involve incorporation of intelligence from AI systems, besides leaving the ultimate responsibility of disease identification/ outcomes in the hands of the clinician as a means of critical intervention. Growing number of studies have indicated the successful implications of intelligence through analytics in areas including patient stratification, decisions at triage and prediction of severity levels of disease.

**Biography**

Pooja M R, currently working as Associate Professor in the department of Computer Science and Engineering is a researcher in the area of health informatics. Her research work focuses on the application of artificial intelligence to healthcare applications with specific implications to machine learning. She has published research papers in both, peer reviewed journal and conference publications. She has been invited as speaker for various international events focusing on health informatics.

**Dipankar Bhattacharyya**
Chichuria Institute of Medical Science & Research, India

## Reposition of Montelukast either alone or in combination with Levocetirizine against SARS-CoV-2

It has been hypothesised that antiallergic medications (AAMs) like montelukast and levocetirizine both the two bitter chloro compounds could be repurposed either alone or combinedly as an antiviral against SARS-CoV-2, like chloroquine/hydroxychloroquine (CQ/HCQ), anorher two bitter chloro compounds. Both AAMs and CQ/HCQ are bitter tasted chloro compounds. Depending on their these two similar physical properties and the safety and efficacy of AAMs by controlling over post viral episodes as comparing with viral inhibitory activities including SARS-CoV-2 by CQ/HCQ, a reposition of AAMs either alone/combinedly could be rationalised as an antiviral approach to nCoV.

**Biography**

Dr. Bhattacharyya graduated in Chemistry Honours and post graduated in Biochemistry from Kolkata University. He has completed his Ph.D. In Protein Biochemistry and Enzymology guided by Prof. Parimal C. Sen, Department of Chemistry, Bose Institute and Jadavpur University, Kolkata, India and Postdoctoral training under the supervision of Prof. P.E. Kollatukudy, Department of Molecular Neurobiology, The Ohio State University, Columbus, USA. He has more than 30 years of research and 5 years of teaching experiences in different Universities and Institutes. Since last 10 years he is working as Principal Investigator from Chichuria Institute of Medical Science and Research, India.

**Rekha Khandia*, Shailja Singhal, Utsang Kumar**
Department of Biochemistry and Genetics, Barkatullah University, Bhopal, M.P, India

## Role of Parainfluenza virus (PIV) and Human metapneumo virus (HMPV) and their codon choices involved in causing lung infection

At present, almost all countries are suffering with the deadly consequences of the SARS CoV-2 virus. Though ~80% among affected patients get recovered from this disease but patients suffering from comorbidities especially heart and lung diseases like, COPD (Chronic Obstructive Pulmonary Disease), asthma, lung cancer, etc. are at high risk of fatal consequences of the viral infection. As the disease COVID-19 caused by the SARS CoV-2 in such patients affect the airflow and increases inflammation in respiratory tract further leading to death. Other viruses like parainfluenza virus (PIV) and human metapneumo virus (HMPV) are minor pathogens like *coronaviruses*, also affect all age group including children suffering from asthma. These viruses are contagious and classified under the same family Paramyxoviridae. We performed computational study involving various CUB indices to understand the synonymous codon usage pattern and host adaptation of both PIV and HMPV viral genome using the genome sequences available on NCBI. In this study, we have considered a total of 120 transcripts (30 transcripts of PIV and 90 transcripts of HMPV) that are an exact multiple of three bases and having a start and stop codon without any unknown base (N) in the entire length of coding sequences. The nucleotide composition analysis, in both PIV and HMPV, depicted A and T preference over G and C at first and third codon positions. The RSCU analysis represented A/U ending codons preference over G/C ending codons in both the viral genome. Codon adaptation index (CAI), RCDI and similarity index are the major parameters that reveals host relatedness, the present study showed strong host adaptation for *Homo sapiens*.

**Biography**

Dr. Rekha Khandia, M.Sc., Ph.D. (Biotechnology) is an assistant professor at the Department of Biochemistry & Genetics, Barkatullah University, Bhopal (India). She achieved her graduate and post-graduate degree at the Institute of Microbiology and Biotechnology, University Teaching Department (UTD), Bhopal. She carried out research work on anthrax and did her Ph.D. degree in 2009 at ICAR-National Institute of High-Security Animal Diseases, Bhopal. She received many national and state-level awards in literature and science and fellowships due to her outstanding performance throughout her academics. She developed interest and expertise in reverse genetics techniques that led her to generate reassortant avian influenza virus as a potential vaccine candidate against highly pathogenic avian influenza. She further worked under CDDL (Central Disease Diagnostic Laboratory, Ministry of Agriculture, Govt. of India) at ICAR-National Institute of High-Security Animal Diseases, Bhopal, during 2003-2014, an OIE (World organization for Animal health) as a research associate. She has published more than 80 research articles in Scopus Indexed Journals and received 9000+ citations. She got an appreciation letter from ICAR, Krishi Bhavan, New Delhi, for her excellent contribution in earning the recognition of "OIE referral lab" for Avian Influenza disease for ICAR-NIHSAD. This expertise remained fruitful for the country's interest in the particular case of bird-flu diagnosis and vaccination program of AIV H5N1 highly pathogenic strain.

**Hassan Motamed*[1,2], Arash Forouzan[1], Ali Delirrooyfard[1], Ali Raminfar[1,2]**

[1]Emergency Medicine Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

[2]Air Pollution and Respiratory Diseases Research Center, Ahvaz Jundishapur University of Medical Sciences Ahvaz, Iran

# Tacrolimus Nebulization as an adjunctive medication for severe acute Asthma: A randomized controlled trial

**Background:** As a chronic disease of respiratory system, asthma affects millions of people. Because of its suboptimal control, it remains as a burden for health systems. Immune-suppressive agents are the most prescribed medications in asthma patients. Tacrolimus is an immune suppressor medication that is believed to be helpful in asthma control. The aim of the current research is to evaluate the effects of Tacrolimus on improving clinical symptoms, FEV1 and PEFR in patients with acute asthma attack.

**Methods:** The study was carried out on 82 initial enrolled patients with severe asthma, in a block randomization of whom were referred to emergency departments due to acute asthma attack. The control group received 0.5 mg ipratropium bromide nebulize along with 5 mg albuterol nebulize, repeated three doses with interval of 20 minutes, and also a single dose of 50 mg oral Prednisolone at the beginning of trial. The intervention group received the same treatment as the above control group plus single dose of 2 mg nebulized Tacrolimus at the beginning of trial. Pulmonary function (FEV1 and PEFR), clinical symptoms (Borg Dyspnea Scale), hemodynamic variables (blood pressure, pulse and respiration rate, O2 saturation) were compared at minutes 0, 30, 60, 90 and 120 after the intervention for all the studied patients.

**Results:** There were 55.7% female and 44.3% male with a mean age and the mean onset of asthma 38.24 ± 9.7(Range: 18 -55) and 4.3 ± 1.86(Range: 1-8) years, respectively. The FEV1 and PEFR levels before intervention and at various time points after intervention did not show any statistically significant differences. Also, dyspnea severity in different time points did not show significant differences in both groups.

**Conclusion:** Our findings indicate that Tacrolimus (FK 506) possibly is not efficacious to be used as an acute phase medication in controlling severe asthma attack.

**Audience Take Away:**

- More research on acute phase asthma is a need to improve the course of disease. T cell suppressors are target for some researches to clarify if it can be helpful or not.
- If more researches show beneficial findings of use of T cell suppressor in Asthma acute severe crisis, it may lead new management approach for acute severe asthma. It can potentially improve researchers for more new trials on this topic and provide new information to assist in a design problem.

**Biography**

Hassan Motamed is an Associate Professor of Emergency Medicine, Ahvaz Jundishapur University of Medical Sciences, Iran. He completed Emergency Medicine Specialty postgraduation program in 2010 in Shahid Beheshti University of Medical Sciences, Tehran, Iran. His research projects have mainly focused on care diagnostic tests, biomarkers in diagnosis of the diseases and medical situations, several projects on novel medications and treatments of acute phase asthma attacks along with pain control and sedation in Emergency Department. These Research areas help novel medicines applications, procedures and instruments to solve health difficulties and improve quality of lives.

**Mohammad Rabbani Khorasgani* and Babak Beikzadeh**
University of Isfahan, Iran

## The effects of lifestyle on allergic diseases

"Lifestyle" is a way or style of people living in a special time and place. Lifestyle includes behaviours and functions of individuals which are formed in a specific geographical, economic, political, cultural and religious context and influenced by them. The human lifestyle impacts different aspects of human life, especially the immune functions. In the article, the effects of human lifestyle on allergy as a major public health problem with high socio-economic impact have been briefly described as the following:

1. Association of allergy development with lifestyle:

1.1. Smoking

1.2. Nutritional lifestyle:

1.2.1. Dietary components especially in infant nutrition

1.2.2. Dysbiosis

1. 3. Industrial components:

1.4. Vaccinations

1.5. Antibiotic therapy

1.6. Hygiene hypothesis

2. Prevention of allergic diseases:

2.1. Nutritional lifestyle during pregnancy

2.2. Breastfeeding

2.3. Avoidance of potentially allergic agents

3. Changing the lifestyle for allergy management:

3.1. Diet and nutritional lifestyle

3.1.1. Avoidance of allergenic foods

3.1.2. Anti-inflammatory diet

3.1.3. Key supplements for natural allergy relief: vitamin D3, probiotics, quercetin & bioflavonoids and bromelain

3.2. Devise strategies to minimize exposure to pollen and other potential allergens

3.3. Exercise and alternative medicine practices

It is recommended to beneficial use of lifestyle management for prevention and control allergic diseases such as asthma.

**Audience Take Away:**

- The audience will be able to focus on lifestyle related factors for health promotion specially via immune functions management.

- The beneficial use of the article by health professionals is respected. They could help to patients for prevention and control of allergies by lifestyle modifications.
- The Practical solutions to get achievements in prevention and control of allergies by lifestyle modifications are applicable.
- The article is in accordance with WHO recommendations for health promotion via lifestyle management.

**Biography**

Mohammad Rabbani Khorasgani is an Associate professor of Microbiology, in University of Isfahan, IRAN. He has DVM and PhD in Microbiology degrees. He has published more than 70 articles about infectious diseases, evaluation of natural materials effects for prevention and control of diseases especially infectious diseases . Many of his researches has focused on probiotics. He has some interdisciplinary articles especillay about lslamic lifestyle and health relationship, also.

**Elham Harati*[1,2], Maryam Bahrami[2], Alireza Razavi[3], Mohammad Kamalinejad[4], Maryam Mohammadian[5], Tayebeh Rastegar[6], and Hamid Reza Sadeghipour[2]**

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[4]Department of Pharmacognosy, School of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran
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## Effects of viola tricolor flower hydroethanolic extract on lung inflammation in a mouse model of chronic asthma

Asthma is a chronic inflammatory disease of the lungs driven by T cell activation. Viola tricolor L. as a traditional medical herb could suppress activated T lymphocytes and has been used empirically for asthma remedy. In the present study, we investigated the anti-inflammatory effect of Viola tricolor and its underlying mechanism on asthma characteristics induced by ovalbumin (OVA) in mice. BALB/c mice were randomly divided into six groups: normal control, Ovalbumin (OVA) control, OVA mice treated with Viola tricolor (50, 100 and 200 mg/kg) and dexamethasone (3mg/kg). All mice except normal controls were sensitized and challenged with OVA. Asthmatic mice were treated orally in the last 7 days of OVA challenge. The total and differential leukocyte counts, Interleukin (IL)-4 and interferon (IFN)-γ levels in bronchoalveolar lavage fluid (BALF) were determined. H&E staining for lung inflammation was performed. Viola tricolor treatment at 200 mg/kg significantly decreased IL-4 level but did not considerably affect the IFN-γ level. Therefore, it effectively reduced asthma characteristics including infiltration of leukocytes particularly eosinophil and peribronchial inflammation as compared to dexamethasone. However, Viola tricolor at 100 mg/kg had the most prominent inhibitory effect on the IL-4 level and also markedly increased IFN-γ level. As result, it prevented further reduction of inflammatory parameters in this group compared to the Viola tricolor-treated group at 200 mg/kg. Our study demonstrated that Viola tricolor has anti-inflammatory effects via inhibition of Thelper type 2 (Th2) cytokine production and validated its empirical usage in traditional medicine.

**Audience Take Away:**

- Present study demonstrated that Viola tricolor has anti-inflammatory effects via inhibition of Th2 cytokine production and validated its empirical usage in traditional medicine.
- The therapeutic effects of Viola tricolor on lung remodeling as well as its bronchodilator effects can be studied.
- The therapeutic effects of Viola tricolor are dose-dependent. Therefore, for better therapeutic effects and normalization of the balance between the type 1 and type 2 T helper cytokines, the best dose should be determined and used.
- The anti-inflammatory effects of Viola tricolor on humans in allergic asthma and other inflammatory lung diseases such as COVID can be studied.

- Viola tricolor has immunomodulatory effects and its effects can be studied in the treatment of diseases in which the immune system is overactive.

**Biography**

Dr. Harati studied Physiology at the Tehran University of Medical Sciences, Iran and received her PhD degree in 2018. She is interested in allergic asthma and psychiatric and neurological disease. She is a researcher at Iranian Center of Neurological Research, Neuroscience Institute, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran. She is a reviewer and an editorial board member of several journals. She is a member of the Iranian Asthma and Allergy Association. She is the Invited Assistant Professor of Physiology at Islamic Azad University, Tehran Medical Branch.

**Seyyed Shamsadin Athari*[1] and Entezar Mehrabi Nasab[2]**

[1]Department of Immunology, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

[2]Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran

## COVID-19 cytokine storm complications in asthmatic patients

The pandemic of coronavirus disease 2019 has inflicted millions of people in the world and caused severe complications in immunocompromised individuals. Some evidences suggest that severe COVID-19 complications are associated with the cytokine storm syndrome, contributing to the high mortality rate of the disease. Asthma is a complicated disease of the respiratory system. COVID-19 symptoms can be worse in asthmatic patients than others. Corticosteroids with anti-inflammatory functions which are used in asthmatic patients may have adverse outcomes in coronavirus infection and are not recommended for the treatment of COVID-19. Furthermore, asthmatic patients (using inhalation corticosteroids) have a suppressed immune system in the lung, which increases their susceptibility to COVID-19 infection.

**Biography**

Dr. Athari is an Assistant Professor of immunology at the Department of Immunology, School of Medicine, Zanjan University of Medical Sciences. He has an allergy and asthma toxicology post-doctorate degree, asthma management and controlling network fellowship and MPH in health policy of asthma. He has published more than 100 manuscripts in international journals on immunology, allergy and asthma and more than 30 books. He is also on the editorial board of more than 75 international journals in medical sciences and has more than 12 inventions in medical sciences and has recorded 12 gene sequences in the gene bank. Dr. Athari has been invited as top speaker for more than 45 international congresses and symposiums and has received several scientific awards from different scientific societies as a young top researcher and young scientist.

**Nalan Metin Aksu**
Hacettepe University, Turkey

## The management of COPD exacerbation in ED

COPD exacerbations are so common in Emergency Department (ED). The vast majority of them are treated in ED because of lack of the ICU and ward beds and they are discharged from ED. So the evidence based management of COPD exacerbation is so important. In this presentation the management of the COPD exacerbation was explained as the availability and the accessibility of drugs and medical equipment in ED. The novel treatment modalities which are suitable for ED were also discussed.

**Audience Take Away:**

- The audience may learn the updated management of COPD exacerbation and also the novel treatment modalities. They may update their knowledge and also they may learn what they can do in the face of in ED.

**Biography**

Nalan Metin Aksu was graduated from the Ankara University, Faculty of Medicine at 1997. I was educated on Emergency Medicine residency programme between 1999-2004 in Hacettepe University, Department of Emergency Medicine. I was being an associate professor at 2013 and professor at 2020 in Hacettepe University. I am the head of the Emergency Department till 2014.

**Lukasz Kołtowski*[5], Mikołaj Basza[1], Wojciech Bojanowicz[1], Piotr Dabrowiecki[2,3], and Mateusz Solinski[4]**

[1]Medical University of Silesia in Katowice, Katowice, Silesia, Poland
[2]Department of Allergology and Infectious Diseases, Military Institute of Medicine, 04-141 Warsaw, Poland
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[5]Department of Cardiology, Medical University of Warsaw, Warsaw, Poland

## Remote spirometry with online-connected operator allows to obtain high-quality lung function tests

Remote spirometry is a novel form of supervised lung function testing of the patients in their homes. It consists of the patient performing a spirometry examination at home, using a mobile spirometer, under the supervision of a specialist who communicates online with the patient in real time, during the test. In this pilot study, the quality of spirometry tests performed by the patients during remote spirometry was evaluated. The protocol of the remote spirometry test was as follows: a) mobile spirometer (AioCare, Healthup) with antibacterial filter is sent to the patient in a package, b) patient receives the spirometer, downloads the mobile application (AioCare Patient), and create a patient account, c) the patient communicates with the specialist by an online communicator (with video or audio connection) and after short instruction performs spirometry examination under its supervision with the dashboard-visible result of the examination in real time, d) the patient sends back the spirometer. 101 subjects (39 females) with a mean age of 39.4±14.4 years (range: 13-72 years) and an average BMI index of 25.5±4.6 kg/m^2 were included in the analysis. Spirometry assistance was provided by 2 trained operators. Among 101 spirometry examinations, 77 (76%) were correct based on ATS/ERS Standardization. There were no significant differences in the percent of correct examinations between the patients <=40 years vs. >40 years (80% vs. 71%, p=0.403), nor between females and males (79% vs. 74%, p=0.713). Among the correct examinations, 10 (13%) indicate bronchial obstruction (7 – mild, 2 – moderate, 1 – severe obstruction). In the incorrect examination the main cause of the not meeting correctness criteria was: lack of repeatability (75%), time to PEF > 300 ms (52%), BEV error (1%), lack of plateau (4%), cough occurred (2%). The process of service management and spirometry was monitored using an online dashboard, which allowed for optimal remote visits planning. The study showed a high level of the quality of remote spirometry examinations, comparable to the performance obtained in the clinical environment, even for the elderly patients who are generally less familiar with the mobile technologies. The advantage of this form of testing is to increase accessibility of spirometry tests, especially during Covid-19 pandemic (when the performance of spirometry in clinical settings has been significantly reduced), for immobilized patients or those who live in smaller urban centers.

**Audience Take Away:**

- The audience will get the proof that the remote spirometry test with online supervision provides to high quality results of lung function tests.
- In the presentation the protocol of the remote spirometry will be fully explained.
- Mail challenges associated with the remote spirometry performance will be described.
- The audience will find out novel solution for remote lung function testing which increases accessibility of spirometry tests, especially during Covid-19 pandemic.

**Biography**

Lukasz Koltowski, MD, PhD, BA, cardiologist, investigator and mobile health specialist working in the medical field and consulting innovative telemedical projects. He obtained his Doctor of Medicine (M.D.) degree from the Medical University of Warsaw (Poland), he also earned Bachalors of Arts in Business and Administration, as well as PhD in Medicine. He gained his work experience at various hospitals in Warsaw (Poland), Oxford and London (UK), Lawton (USA) and Cologne (Germany). Since 2010 he works at the 1st Department of Cardiology at the Medical University of Warsaw. Founder of Healthup and inventor the AioCare - a mobile spirometry system.

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POSTERS

DAY 1

INTERNATIONAL CONFERENCE ON

# COPD AND ASTHMA

SEP 22, 2021

**Shikhar Tripathi*[1] and Atul Kakar[2]**

[1]Student-Observer, Department of Medicine, Sir Ganga Ram Hospital, New Delhi, India

[2]Vice Chairman, Professor and Senior Consultant, Department of Medicine, Sir Ganga Ram Hospital, New Delhi, India

## Impacts of COVID-19 infection on patients with COPD and Asthma

COVID-19 has led on to a global healthcare crisis, similar to none in the recent past. Special emphasis must be laid on the impact of the infection on patients with COPD and Asthma, considering the vulnerability seen in these groups toward previous coronavirus diseases. SARS-CoV-2 is known to be utilizing angiotensin-converting enzyme 2 (ACE2) receptors to infect humans hosts. Moreover, the pathological findings of COVID-19, is diffuse alveolar damage with fibrin rich hyaline membranes and a few multi-nucleated giant cells. Both of which indicate towards the detrimental impacts the infection on outcomes in COPD and Asthma patients. There have been previous studies on how patients with asthma and COPD have differing outcomes based on the different ACE2 expressions, specifically in the lower airways, and over here, through this presentation, we will understand the possible differing outcomes and the immunological basis behind them. Within this presentation, we will try to understand the the mechanisms that seed infection distally in the lungs, and the virus-host interactions that attenuate or augment intra-regional virus growth in the lungs of COPD patients to produce severe disease.

**Audience Take Away:**

- The audience will understand the immunological aspect of impact of COVID-19 infection on patients with COPD and Asthma which will help them with 'clinical management' of severe symptoms in such patients.
- The audience will understand the correlation between epidemiology of COVID-19 and COPD/Asthma, which shall help them to propagate it further to their patients and help them with 'prevention' of severe symptoms and poor prognosis.
- This presentation will focus on our research where we analyse and review the data and literature available on the topic, which shall definitely help the audience with their future researches.
- This presentation will include preventive and management measures that shall help the audience in understanding the factors that lead to poor prognosis in this group of patients and shall further aid the audience in designing protocols that shall be effective for the same.
- This presentation will be providing an amalgamation of essential information on the aforementioned topic, that shall prove to be very helpful for the audience.

**Biography:**

Shikhar Tripathi is a medical student, researcher and an author. Even as a student, he has published multiple research as well review articles, which have received global acclaim, and has authored two medical reference books. One of his articles, where he gave a hypothesis on vertical transmission of COVID-19 from pregnant mother to fetus, was well acclaimed worldwide and even got featured by Johns Hopkins Bloomberg School of Public Health in their repository and also got featured amongst the references on COVID-19 researches, on Wikipedia. He has been a guest speaker for the Young Researcher's Forum at International Conference on Diabetes, Hypertension and Metabolic Syndrome, 2020. (took place as webinar due to COVID-19) and is slated to be a guest speaker at International Conference on Clinical & Pharmaceutical Microbiology, 2021 (to be held in November 2021).

**Simon Walsh*[1], Marsha Tracey[2], Brenda Dooley[3], Marion Fahey[1], Roisin Flynn[4], Muireann McAlister[5]**

[1]Health Economist, Pfizer, Dublin, Ireland
[2]Health Technology Assessment Manager, AXIS Healthcare Consulting Ltd, Dublin Ireland
[3]Brenda Dooley, CEO, AXIS Healthcare Consulting Ltd, Dublin, Ireland
[4]Medical Advisor, Pfizer, Dublin, Ireland
[5]Health and Value Lead, Pfizer, Dublin, Ireland

# Estimating the economic burden associated in the treatment of community acquired pneumonia (CAP) among adults with chronic obstructive pulmonary disease (COPD) in Ireland.

**Background:** The economic burden of COPD is substantial. In the EU, the burden of COPD is estimated at €48.4 billion annually. In CAP treatment, COPD is associated with increased healthcare resource use and medical costs. Projected population growth and ageing will require investment in the workforce and bed capacity to match the growing demand for public hospital costs. This research hopes to identify the cost of a single episode of CAP among adults with COPD in Ireland.

**Objectives:**

- Develop a search strategy and implement a comprehensive review of the economic evidence for CAP in COPD patients in acute and community settings.
- Understand the treatment pathway for CAP in adult patients with COPD in Ireland via the literature identified.
- Develop a cost-projection model, based on the treatment pathway in an acute setting, to estimate the cost of CAP in patients with COPD in Ireland over 5 years.

**Methods:** A literature review was carried out in Embase, Medline and EconLit with OVID platform to identify relevant studies. Eligibility criteria were defined a priori, and searches were restricted to studies published between January 2006 and February 2020. Relevant grey literature included abstracts presented at ISPOR, European Respiratory Society and Thorax BMJ conference proceedings. The treatment pathway deduced from the literature (Figure 1) was the theoretical framework for the cost projection model. Unit costs from published Irish-specific sources were used to provide inputs for the cost projection model. Costs were inflated to current day values using the index from the Central Statistics Office. Drug costs were calculated according to the National Centre for Pharmacoeconomics (NCPE) guidelines.

**Results:** The literature search identified 211 records from bibliographic databases. After removal of duplicates 204 records were screened by title and abstract. 178 articles were excluded, the remaining 26 were included for full text review. 9 records were deemed eligible for inclusion. The treatment pathway deduced from the identified literature is shown in Figure 1. Over the 5-year projected period the prevalent number of COPD cases in adults aged 40 ≥ years was estimated to increase from 110,000 in 2020 to 119,983 in 2024.The cost projection model results calculated the estimated cost to treat one episode of CAP as a general ward admission was €8,186.The estimated cost to treat one episode of CAP in an intensive care unit (ICU) was €38,717. The annual cost attributed to the treatment of CAP among adults with COPD in an acute setting over a 5-year period was a cost of €32,754,148 to the Health Service Executive (HSE) in Ireland (Table 1). Analysis of uncertainty were carried out to examine the impact of longer antibiotic treatment duration and the highest healthcare resource use as reported in the literature.

**Figure1.** Treatment pathway for CAP in adult patients with COPD in an acute setting

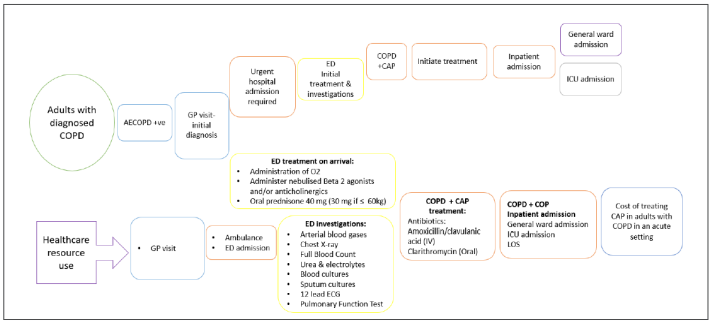


**Table1.** Projected costs attributed to the treatment of CAP among adults aged 40 ≥ years with COPD

| | 2020 | 2021 | 2022 | 2023 | 2024 | 5-year cumulative cost |
|---|---|---|---|---|---|---|
| Total cost per CAP episode- general ward admission | €5,707,640 | €5,848,717 | €5,980,929 | €6,108,258 | €6,225,632 | €29,871,177 |
| Total cost per CAP episode- ICU admission | €550,864 | €564,480 | €577,240 | €589,529 | €600,857 | €2,882,971 |
| Annual cost of treating CAP in patients with COPD | €6,258,505 | €6,413,197 | €6,558,169 | €6,697,787 | €6,826,489 | €32,754,148 |

**Conclusions:** To our knowledge this study is the first to establish the economic burden of CAP in adults with COPD in Ireland. Without the added complication of CAP, the economic burden of adults with COPD is substantial. Over a five-year-period, the estimated cumulative cost of the treatment of CAP with COPD in an acute setting was €32,754,149. Given the estimated annual cost of COPD in the EU is €48.4 billion annually (1), the additional cost of treating CAP with COPD could be potentially reduced if Pneumococcal conjugate vaccine (PCV13) was part of the National Immunisation Programme for adults with COPD in Ireland.

**Audience Take Away:**

The audience will understand the current estimated cost of a single episode of CAP in Ireland.

The cost projections will help the audience understand the importance of understanding the additional costs of treating CAP with COPD and how it could be potentially reduced with pneumococcal conjugate vaccine (PCV13).

Current economic burden of disease study for CAP in COPD patients

**Biography:**

Simon Walsh studied at the University of East Anglia, Norwich and graduated as MPharm in 2010. He also completed a Masters in the University of Ireland, Galway in Health Economics in 2018.

**Arben Redjepi*[1], Sead Asani[1], Marija Zdraveska[1], Dejan Todevski[1], Aleksandra Tatabitovska[1], Irfan Ismaili[1], Tome Stefanovski[1], Sasho Banev[2]**

[1]University Clinic for Pulmonology and Allergy, Cyril and Methodius University in Skopje, Faculty of Medicine in Skopje, Republic of North Macedonia
[2]Laboratory for Cytology and Pathohistology "Biopsija", Skopje, Republic of North Macedonia

# The role of EBUS TBNA (endobronchial ultrasound transbronchial needle aspiration) in the diagnosis of small cell lung carcinoma (SCLC) secreting ectopic ACTH (adrenocorticotropic hormone)

**Introduction:** SCLC (Small cell lung carcinoma) is the most common cancer associated with paraneoplastic syndromes. In many cases of suspected ectopic secretion of ACTH (adrenocorticotropic hormone), it is difficult to confirm the diagnosis histologically or cytochemically, especially when the tumor is located in the mediastinum

**Case presentation:** We report a case of 50-year-old male patient presenting with a mediastinal SCLC with clinical and biochemical characteristics suggestive of ectopic secretion of ACTH. Patient initially presented with severe hypertension, severe and persistent hypokalemia resistant to standard treatment, metabolic alkalosis, new-onset diabetes mellitus and altered mental status as the first clinical manifestations of ectopic ACTH-secretion. Computed tomographic scan of the thorax revealed left mediastinal mass within the aortopulmonary window with signs of vascular invasion, enlargement of the mediastinal lymph nodes in 4L, 10L and ipsilateral small pleural effusion (figure 1). The diagnosis of SCLC was made with EBUS-TBNA biopsy of the mediastinal tumor. Histologic analysis of the samples confirmed the diagnosis of small cell lung carcinoma and immunocytochemical staining of the samples confirmed the secretion of ACTH by tumor cells (figure 2 and 3). The patient was treated with combination of spironolactone and ketoconazole to decrease levels of ectopic ACTH prior to chemotherapy

**Conclusion:** The diagnosis of the source of ectopic secretion of ACTH can be very difficult when the tumor is located in mediastinum. EBUS-TBNA is an effective, safe and accurate tool for diagnosing mediastinal tumors and providing sufficient tissue samples for histological and immunocytochemical analysis.

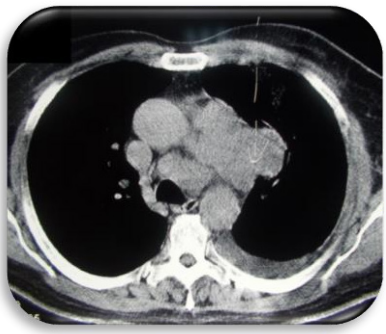

Figure 1

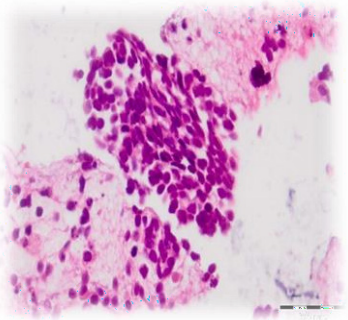

Figure 2

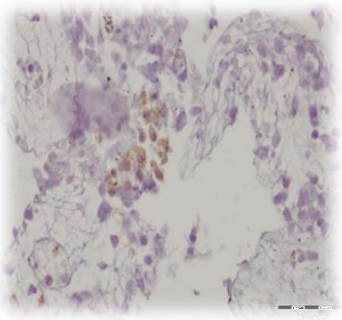

Figure 3

**Biography:**

Arben Redjepi, born in 1973 in Skopje, Republic of North Macedonia. Completed medical studies in Rijeka, Croatia in 1998. Completed specialization in internal medicine in 2009 and subspecialization in pulmonology and allergology in 2015 in Skopje, Republic of North Macedonia. From 2004 to 2020 worked at the University Clinic of Pulmonology and Allergy, Department of Invasive Pulmonary Diagnostics, Skopje, Republic of North Macedonia. Since February 2021 is working in the department of interventional pulmonology diagnostics at the Acibadem Sistina Hospital, Department of Invasive Pulmonary Diagnostics, Skopje, Republic of North Macedonia. Published more than 30 research articles.

**Elham Harati*[1], Sahar Raoofi Mohseni[2], Hamid Reza Sadeghipour[1]**

[1]Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

[2]Department of Pathobiology, Division of Immunology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

# The effect of Viola tricolor L. flower hydro-alcoholic extract on anxiety-like behavior in a mouse model of chronic asthma

**Background:** Since anxiety may aggravate asthma outcomes and current anti-anxiety drugs may cause respiratory depression, the development of new anxiolytic therapies for asthmatic patients is critically needed. Viola tricolor L. has been used empirically for asthma remedy, but its anxiolytic effect has not been evaluated yet. Here, we investigated the effect of Viola tricolor L. hydro-alcoholic extract on anxiety- like behaviour in ovalbumin (OVA) sensitized mice.

**Methods:** BALB/c mice were randomly divided into six groups: normal control, OVA (asthma) control, OVA + Viola tricolor (50, 100 and 200 mg/kg) and OVA + dexamethasone (3 mg/kg). Allergic asthma was induced in mice by sensitization and challenge with ovalbumin. Asthmatic mice were treated orally in the last 7 days of the OVA challenge. One hour after the last administration of therapeutic regimen, the anxiolytic activity was evaluated by elevated plus maze. Next day, the body weight of the animals and OVA-specific immunoglobulin (Ig) E levels in serum were measured.

**Results:** Viola tricolor at all three doses as well as dexamethasone significantly suppressed OVA- induced IgE production, although IgE level in dexamethasone-treated group remained significantly higher than the normal control group. Viola tricolor treatment particularly at 200 mg/kg increased open arm activity and improved body weight in asthmatic mice. However, treatment with dexamethasone in asthmatic animals did not induce significant changes in open arm activity and body weight.

**Conclusions:** Unlike corticosteroid therapy which did not improve anxiety, Viola tricolor can be a good remedy for treating asthma associated anxiety.

**Audience Take Away:**

- Allergic responses are implicated in the development of psychiatric diseases, such as asthma associated anxiety. Since anxiety may aggravate asthma outcomes and current anti-anxiety drugs may cause respiratory depression, the development of new anxiolytic therapies for asthmatic patients is critically needed.
- The results of the present study suggest unlike corticosteroid therapy which cannot improve anxiety, Viola tricolor appears to be beneficial for managing asthma- associated anxiety. However, future studies are warranted to evaluate the role of GABA receptors in mediating anxiolytic effects of Viola tricolor.

**Biography:**

Dr. Harati studied Physiology at the Tehran University of Medical Sciences, Iran and received her PhD degree in 2018. She is interested in allergic asthma and psychiatric and neurological disease. She is a researcher at Iranian Center of Neurological Research, Neuroscience Institute, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran. She is a reviewer and an editorial board member of several journals. She is a member of the Iranian Asthma and Allergy Association. She is the Invited Assistant Professor of Physiology at Islamic Azad University, Tehran Medical Branch.

**Hassan Motamed**
Tehran University of Medical Sciences, Iran

## Asthma Future Studies; New Treatment Strategies and conflicts

Asthma is an important chronic disease which imposes a huge financial pressure on medical health services. Acute attacks and referral to Emergency Department is a challenge. Many Environmental Factors influences asthma in addition to its hereditary basis. Asthma is the culprit of significant number of missing school and work days due to the disease restrictions. Many cross-sectional studies have confirmed increases in the incidence and prevalence of asthma over the past 2 to 3 decades. Almost 25% of annual Emergency Departments visits are related to asthma. Asthma especially in acute setting medical management is a research attraction. Novel therapeutic strategy results are challenging and complex, a lot of new treatment is under investigation. Traditional standard medications in the disease acute setting consist of Oxygen administration, B2 adrenergic agonists, anticholinergics and corticosteroids depends on the severity of the attack. Current recommendations favor inhaled corticosteroids for all patients with mild persistent asthma or more severe asthma. Magnesium parenteral administration in severe asthma attacks improves airflow obstruction and decreases the need for hospital admission. Methylxanthines has no role in the acute attack medications because of their lack of demonstrated efficacy and increases in adverse events. An IV bolus dose of 0.2 milligram/kg of Ketamine followed by an infusion of 0.5 milligram/kg/h is sometimes used in status asthmaticus and may be beneficial. There is limited data regarding ketamine efficacy in treating severe asthma. Epinephrine can be given subcutaneously or intramuscular in adult in refractory life threatening situations. Terbutaline is an option for patients whom cannot tolerate inhaler treatments such as very severe attacks. IV β-agonist infusions offer no advantage over aerosolized or metered-dose inhaler–delivered agents and carry increased risk. Some studies state that leukotriene modifiers such as montelukast and zafirlukast may improve FEV1/PEFR when given during acute attack. Despite one trial with adjuvant IV montelukast for acute Asthma, there is no indication for the use of any of the leukotriene modifiers in the ED. antibiotics has no role in the management of uncomplicated acute asthma. Heliox can lower airway resistance as an adjunctive treatment of severe asthma, but does not reliably avert tracheal intubation and hospital admission and mortality. Analaysis Based on Heliox effect on Spirometeric and clinical improvement of acute asthma attack are controversial. One study data revealed Addition of nebulized furesmide to asthma standard treatment increases peak flow rate but it does not significantly affect FEV1, FVC or clinical score. These data were not concluding. Some research data suggest that lidocaine seems a novel promising agent for it's off the label use in steroid dependent asthma. Inhaled lidocaine through its anti-inflammatory and direct smooth muscle relaxant action possesses a substantial role in the treatment of steroid dependent asthma. One study data showed a novel natriuretic peptide receptor-A acts as a bronchodilator and it can be a potential target for new asthma management. Tacrolimus acts as an immunosuppressor drug via inhibition of cytokine production and might be useful for the treatment of asthma and possibly other T cell suppressors do the same. Some Studies claim that Neurokinin antagonists may inhibits neurokinin A induced bronchoconstriction in asthma. Some researchers showed Thiazolidinediones such as troglitazone and rosiglitazone, in long term use, may have a broad anti-inflammatory effect and possibly beneficial as an asthma medication.There is a report of two cases, whose symptoms related to asthma had remitted during treatment with pioglitazone, but the objective data supporting improvement of asthma were not sufficient. Prostacycline analogs such as iluprost, possibly via production of IL-10 and Supression of TNF-a, can be effective in asthma improvement. Based on some results Heparin nebulize may possibly promote FEV1 as an asthma treatment, but the data were not concluding. Omalizumab, a recombinant humanized monoclonal anti-IgE antibody, selective inducible NO synthetase inhibitors and gene-directed therapies are another under evaluation asthma therapies that their efficacy have not been proved. There are significant

controversies in the field of new introduced medications, suggesting for acute asthma treatment and a lot of ambivalences that should be answered. This is a long way to clarify the costs and benefits of the different under investigation drugs and the conflicts in the research results. More trials are needed to clarify a lot of questions to open more windows to the asthma acute attack treatment especially for the Emergency Departments.

**Audience Take Away:**

- New medication approaches for acute asthma attack management is an new attractive topic for researches and improve patients acute care.
- Use of new documented reliable new findings can be applied as conjunctive medication for standard practice. It can be a solution for decreasing costs and serve a more improved care to Emergency Department Patients. It can also be target for establishment of new researches as a light.

**Biography:**

Hassan Motamed is an Associate Professor of Emergency Medicine, Ahvaz Jundishapur University of Medical Sciences, Iran. He completed Emergency Medicine Specialty postgraduation program in 2010 in Shahid Beheshti University of Medical Sciences, Tehran, Iran. He has worked in several different research projects for the past 10 years. His research projects have mainly focused on care diagnostic tests, biomarkers in diagnosis of the diseases and medical situations, several projects on novel medications and treatments of acute phase asthma attacks along with pain control and sedation in Emergency Department.

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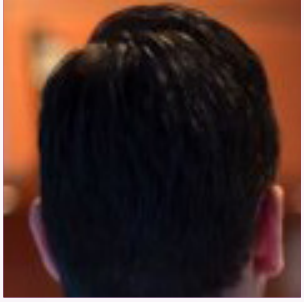
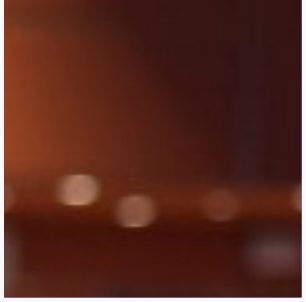
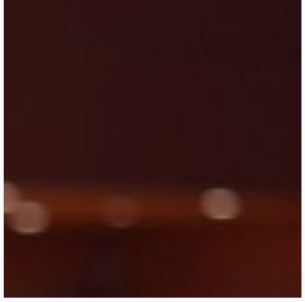
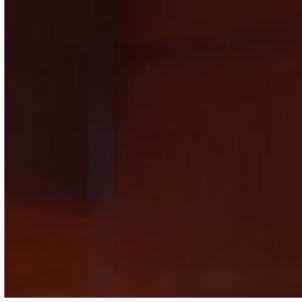
## Proinflammatory cytokines and immunocompetent cells response during COPD exacerbation

The cigarette smoke is the main reason for developing COPD, since this external irritant activates receptor cells of the innate immunity and this in turn leads to synthesis and release of proinflammatory cytokines, such as TNF-α, IL-1, and IL-6. Regulatory T-lymphocytes participate in the proinflammatory process by secretion of IL-10 and the TGF- β. It was found that IL-10 levels are inversely associated with severity of COPD. However, there are no definitive results on comparative studies of local proinflammatory and immunosuppressive cytokines during exacerbation of COPD. The study included 104 COPD patients. The control group included 98 healthy individuals. Results of the study found that COPD exacerbation lead to high inflammatory activity at local level. A significant ($p<0.001$) increase in local levels of proinflammatory (IL-1β, IL-6, TNF-α) and immunosuppressive (IL-10, TGF-β) cytokines was observed in COPD patients in comparison with the control group. In our opinion, this means that immunosuppressive activity on immunocompetent (ICT) cells is preserved in spite of increased activity during the exacerbation period of COPD.Our data indicate the presence of synergism in the level of pro-inflammatory and suppressive cytokines locally (COPD patientsIL-1β 102.3±39.3*; IL-6-93.3±30.1*; TNF-α 66.2±20.9* and control IL-1β-14.9±9.6;IL-6 11.1±4.7;TNF-α 25.7±6.1 inpg/ml, $p<0.001$) compared with the control group without lung pathology.Next stageof this paperwas to analyzeoftheICTcellcompositionofterminalbronchiolesinCOPD patients -10 and volunteers–6 persons. Histological samples originated from COPDpatients who had been operated on account of bullous emphysema. IHC studies were performed by using primary monoclonal antibodies of mouse to Ki-67 (proliferation index), CD3, CD4, CD8, CD20, CD45, CD45R0 and CD68 (DAKO, Denmark) and EnVision + System-HRP imaging systems (DAB) IHC peroxidase method. The data obtained in the experiment was statistically processed using "Minitab 16" statistical software.The results of the study have shown that in COPD there was a significant increased ($p <0.001$) of infiltration of the terminal bronchioles to compared to control by common T-lymphocytes (CD3+),T-helpers (CD4+) and cytotoxic T-lymphocytes (CD8+) content.At the local level of the immune response during COPD does not depend on migration of macrophages (CD68 +), B-lymphocytes (CD20+), CD45+cells, CD45RO + cells and Ki67+ cells into the inflammation area. The importance of the application of this data based both on quantitative and qualitative characteristics of the local response of CD4+ and CD8+T-lymphocyte subpopulations is undeniable. With the advent of the new Delta strain of the COVID-19 virus, COPD patients are faced with increased risk of severe course of disease and morbidity. At this time, there is no effective immunotherapy available for this hazard and the only line of defense is vaccination, which causes adverse reactions in some cases. Therefore, there is great demand for immunotherapy findings.

**Biography:**

Lyudmyla Kuyun, Ph.D., in 1966 graduated from Taras Shevchenko National University of Kyiv with a degree in biology and virology. 1966 – present has worked at Bogomolets National Medical University (BNMU). In 1983 earned her PhD in bio.sci. In 1994-95 completed an apprenticeship at the department of allergology at Virchow University in West Berlin with Prof. Dr. G. Kunkel. In 2019 she became an Associate Professor at BNMU, published over 100 scientific articles, half-dozen textbooks and study aids and a monograph. Several articles featured in Scopus. The scope of research includes immunology and local immune response disorders in patients diagnosed with COPD and peritonitis of the abdominal cavity.

# PARTICIPANTS LIST





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