

Carcinogenesis: A new but similar inflammatory mechanism for Klebsiella pneumonia

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Acute Respiratory Distress Syndrome (ARDS) is characterized by severe respiratory complications that interfere with breathing in patients who have previously been treated with solithromycin and or erythromycin. Respiratory symptoms typically include fever, shortness of breath, wheezing, coughing and fever over that from a milder form of empyema (hypertension). Risk factors for this condition include underlying serious chronic diseases, as well as problems with the lung tissue, particularly within the astrocyte, which is an individual's natural lung tissue (Kellerman 2000).

Respiratory issues can be caused by other infections or if an individual's own immune system (body) is triggered against a substance that should be neutralized by the immune system (called an immunostimulatory event). After years of treating these types of patients with different types of antibiotics, the team of researchers and clinicians at Banner Desert Medical Center in Flagstaff, Arizona and the Instituto Pro San Martires de la Universidad de Arizona (IPSU), have discovered a novel mechanism for how Klebsiella pneumoniae, the most common bacterial cause of ABSSSI, influences the body and triggers an inflammatory response. This important novel mechanism is identified in a research study that has been published in the August 2011 issue of the Archives of Internal Medicine (September 2011).

The researchers examined a group of patients who presented to the emergency department due to severe pneumonia within two weeks of receiving antibiotics administered by their health care provider. During their observation, researchers measured the levels of levels of protein (protein kinase A), also known as PKA, in pulmonary tissue samples of the aforementioned patients. We observed that the spontaneous expression of the enzyme molecules catechinine kinase A and catechinine phosphatase A has induced pro-inflammatory immune responses in astrocytes. Additionally, catechinine kinase A expression was associated with a decrease in expression of AKA and IPK pro-inflammatory cytokines, suggesting that catechinine kinase A induced a pro-inflammatory immune response among astrocytes. The investigation also showed that the increase in catechinine kinase A in astrocytes may help initiate pro-inflammatory immune responses against perturbations in the immune system that may have occurred in this patient population.

Furthermore, by study also showed a significant correlation between a patient's ARDS (the respiratory emergency condition) and the expression of catechinine kinase A (based on measures of levels of catechinine kinase A in lung tissue, as well as the measurement of circulating catechinine kinase A protein in blood) in patients with other immune diseases. The findings showed that these infections in these patients were leading to an inflammatory response that may have an exaggerated effect on prognoses of chronic lung diseases, such as asthma, Chronic Obstructive Pulmonary Disease (COPD), Airway Inflammatory Disease and Chronic Lower Respiratory Infection.

These findings from these studies can help to explain why patients with lung disorders who have been treated with antibiotics commonly develop severe ARDS. A strict adherence to approved protocol for antibiotic therapy may limit the potential for these effects on healing of lung tissue.

About Professor Laura García

Founder and Director of the Programs in Interdisciplinary Research and Education in Community Medicine (PIERE) and in Public Health Outcomes (POPE), as well as the Director of the International Comparative Health Disparities Programme, Professor Laura García, Chairman of the Department of Medicine at Banner Desert Medical Center, develops curricular modules to inspire students who are interested in high-quality care for individuals with healthcare conditions, as well as how to design and implement effective health information systems. Since 1985, she has served as the convener of the Population Health Academic Task Force of the National Academy of Medicine (NAOM), making recommendations to the Academy's Departmental committees and articulating the needs of the health community. As an institute leader of clinical and community medicine programs, Professor García has contributed to current national policy and has promoted initiatives such as the Community Health University to promote community based delivery of quality healthcare to promote optimal health outcomes, as well as have an impact on health disparities. Professor García has been an active leader in all policy areas in academia and has served as Chair of Boards for national teaching, research and health care organizations.



A Fire Hydrant In The Middle Of A Forest