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The role of interleukin-1 antagonists in the treatment of acute pericarditis

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Acute pericarditis is characterized by severe inflammation of the fibrous and serous pericardial membranes covering the heart. It is caused by multifactorial conditions, such as systemic diseases, autoimmune inflammatory diseases, malignant tumours, bacterial and viral infections, including SARS-Cov-2. However, in Europe, most cases of acute pericarditis are idiopathic (80-90%), and may follow viral infections. In sub-Saharan Africa, the leading cause of constrictive pericarditis is opportunistic tuberculous pericarditis, secondary to HIV/AIDS in about 70% of patients. Approximately, 30% of cases of acute pericarditis are recurrent despite the standard of care, and about 25-30% present as pericardial effusion which may lead to cardiac haemodynamic impairment (cardiac tamponade). Treatment of pericarditis is challenging, despite treatment with aspirin, or any other non-steroidal anti-inflammatory drugs, colchicine, and corticosteroids. Interleukin-1 is a master proinflammatory cytokine existing in two isoforms, IL-1 α and IL-1 β , and the latter is the most studied, and is implicated in the pathogenesis of several autoinflammatory diseases, autoimmune diseases, metabolic syndromes, and cardiovascular diseases, including acute pericarditis. Anakinra is a recombinant, nonglycosylated human interleukin-1 receptor 1 antagonists that competes and inhibits the effects of IL-1 α and IL-1 β , thus reducing their systemic inflammatory effects. Treat with anakinra has been shown to be effective in the control of recurrent acute pericarditis in patients who are resistant to colchicine and corticosteroid-dependent. Additionally, treatment with anakinra results in more patients tapering or discontinuing corticosteroids, and no further recurrences of acute pericarditis. Notably, treatment with anakinra has been shown to prevent or reverse constrictive pericarditis. Rilonacept is an interleukin-1 (IL-1) cytokine trap, approved by the US Food and Drug Administration in March 2021 for the treatment of pericarditis, in patients aged 12 years and older. Treatment with rilonacept has been shown to significantly relieve pain and other symptoms of pericarditis, and to rapidly resolve recurrent pericarditis. Additionally, rilonacept led to tapering or discontinuation of corticosteroids. Interleukin-1 antagonists should be initiated early in the course of acute pericarditis in order to avert the troublesome complications of acute pericarditis, such as recurrent pericarditis, tamponade, and constrictive pericarditis.

Biography

Nightingale Syabbalo is a Pulmonologist, and Clinical Respiratory Physiologist by training, and obtained his postgraduate training at St. George's Hospital Medical School, University of London, UK. He has worked as an academician, Consultant Physician, and a Clinical Researcher in several counties, including Canada, Kuwait, Oman, South Africa, and Zambia. He has published extensively in high impact medical journals, and is an Editorial Board member of six journals in Pulmonology and Respiratory Research; and a reviewer of four journals in Thoracic Medicine, Respiratory Research, and Clinical Medicine. Prof. Syabbalo's current area of research centers on the role of interleukins in the pathophysiology and treatment of severe asthma. He has also interest in the mechanisms of interleukins-1 β in the pathogenesis and treatment of pericardial syndromes.