Use of Cardiac Stent to Restore Blocked Air Passage in Chronic Sinusitis

Abboushi, Ahmed (School: Ahmad Bin Hanbal Secondary School)
Murad, Ali (School: Ahmad Bin Hanbal Secondary School)

This investigation aims to provide a potential application to treat blocked nasal air passage observed in chronic sinusitis, which causes significant health risks especially for children including low blood oxygen saturation, persistent pain, asthma, general weakness, and may cause brain infection (meningitis) and other critical complications that could be fatal. We hypothesized that we can use cardiac stents which (used to treat cardiovascular disease and to open a coronary artery) to keep the nasal air path open to reduce the symptoms of chronic sinusitis. The efficiency and strength of this technique was confirmed by using a New Zealand rabbits (whose sinus anatomy is similar to human), which suffered from chronic sinusitis. We installed a bio- cardiac stent in sinus outflow tract to enhance ventilation and drainage. The measurement of O2 blood level (using O2 meter) was taken as the most significantly restored physiological parameter. We employed with X-ray, CT scan and endoscopic images to monitor extent of induced sinusitis with or without nasally implanted cardiac stent. The results showed that the O2 blood level increased by 5% from the first day of installing the stent, which indicated a general physiological improvement. In addition, the bio stent is bio-absorbable by sinus tissues and the symptoms of sinusitis were significantly decreased (Secretions pus cells and inflammation) as CT, X-ray and endoscopic images showed up. This opens the door to a safer and healthier way for sinusitis patients. Abstract