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Relationship of high altitude with congenital heart disease

High altitude has a special predilection for some congenital heart diseases like PDA. Congenital heart diseases with left to right shunting are especially associated with increasing altitude. ASD is the commonest, followed by PDA, VSD and others. PFO shows a unique and complex relationship with high altitude. Whether PFO changes to ASD with high altitude due to hypoxemia over the years is to be documented. Even postoperative patients perform poorly when exposed to high altitude. Himalayas of Nepal and hilly states of India can serve a better example to study this complex relationship of congenital heart disease with high altitude. There is an established link between some specific varieties of congenital heart disease with high altitude and various hypothesis have also been put forward to explain this.High altitude has a special predilection for PDA (Patent Ductus Artyeriosus) and decide the status of ductus dependent circulation. Even the increasing altitudes have a relationship with the incidence of PDA. Prematurity with PDA present with heart failure so become a important point of management to consider the closure of ductus medically and observe the natural course to decide the future plan.Similarly ASD (Atrial Septal Defect) and to some degree VSD (Ventricular Septal Defect) also have link with high altitude. Hypoxia and alteration in chamber pressures can play a role in monitoring patency of foramen ovale which can progress to become ASD. Post fontan/Glenn patents have prognosis which is bad at high altitude comparative to the patients at sea level. In India, natural history can be seen from studies of new born at Himalayas, hills of Himachal and Nilgiris and also from neighbouring country of Nepal. Geographical location can play a significant role in causation of congenital heart disease and hypoxia at high altitude change the pressure dynamics in chambers of heart and alter the hemodynamic adaptation of neonatal circulation just after the birth. It also affects the delay in setting of compliance of pulmonary vascular bed and regression of elevated pulmonary pressures. As we are aware of other variety of special link of sea level and incidence of congenital heart disease; so is the high altitude and its relation to congenital heart disease. More studies are required to study the link between high altitude and congenital heart disease.

Biography

Asif Hasan has completed his MBBS in 1992 and MD (Medicine) in 1995 from J N Medical College, Aligarh Muslim University, Aligarh (India). He did his training in Cardiology from Post-graduate Institute of Medical Education and Research, Chandigarh (India) to obtain his DM (Cardiology) degree. He joined the Centre of Cardiology as Deputy Director in August 2010 and currently is working as Director for Centre of Cardiology since 11th Oct 2016. His main interests are coronary and cardiac structural interventions. During his training in Medicine, he received several gold medals and awards. He has several national and international publications to his name and presented papers at various national and international conferences. He is also an active member of American College of Cardiology and Indian College of Physicians. He has been awarded fellowships of ACC and ICP (Indian College of Physicians) in 2016.

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