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Long-term outcome of Kawasaki disease complicated by a large coronary aneurysm

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Kawasaki disease (KD) is an acute febrile disease of unknown etiology. It causes systemic inflammation of vessels through the whole body and especially affects coronary arteries in children younger than 5 years of age. The disease leads to coronary artery aneurysms in ≈25% of untreated cases. However, approximately 20% of patients who require a second dose of IVIG for KD do not adequately respond to this treatment and require additional medications such as corticosteroid or infliximab. KD was first identified in Japan by Tomisaku Kawasaki in 1967, and has now been described worldwide. In Korea, the annual incidence of KD was 194.7 per 100,000 children in 2014, and the coronary aneurysm rate was 1.7%. The natural history of coronary arterial inflammation in KD was demonstrated to occur through 3 mechanisms as reported previous studies: (1) No coronary artery changes, (2) Mild, transient dilatation that resolves within 4-6 weeks, (3) Necrotizing arteritis that forms an aneurysm. Such risk assessment depends on the patient's maximal Z score in any branch by echocardiography or coronary angiography/angio-computed tomography. Stress myocardial scintigraphy has been shown to be useful for risk stratification, but we should consider its radiologic hazard. Korean nationwide data collected between 1990 and 2011 reported, and showed 239 patients with coronary aneurysms of diameter >6 mm. Severe stenosis or occlusion of the coronary artery were analyzed, and percutaneous transluminal coronary balloon angioplasty was performed in 10 patients, stent placement in 9 patients, and percutaneous transluminal coronary rotational ablation in 3 patients. Thirteen patients presented with suggestive myocardial infarction, 14 patients underwent coronary artery bypass graft surgery, and 5 patients died during the follow-up period. For KD patients with giant coronary aneurysm, careful planning of follow-up is mandatory for long-term manage, and aggressive treatments with transcatheter or surgical intervention are needed.

Characteristics of anemia and iron status and their associations with blood manganese and lead among children aged from 3 to 19 years old from four First Nation communities in Quebec

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Iron deficiency (ID) and anemia are prevalent in indigenous communities. Iron is a divalent metal that may interact with manganese (Mn), lead (Pb), cobalt (Co), zinc (Zn) and cadmium (Ca). All share common absorptive pathways and iron deficiency (ID) is known to up-regulate other metals, thereby increasing their intestinal absorption, concentration inside the body. This study aimed at investigating the prevalence, types, and severity of childhood anemia and ID and also to study and document the possible associations between blood Mn, Pb, Cd, Zn, Co and iron biomarkers are the objects of this study. Blood samples for hemoglobin (Hb), iron biomarkers, blood Mn, Cd, Zn, Co and Pb were collected from 4 First Nations of Quebec. Descriptive and multiple regression statistical analysis adjusting for relevant co-variables are used to assess research objectives. Results showed ID and anemia prevalence of 20.7% and 17.6% respectively, among which 8.8% present iron deficiency anemia. Moreover, up to 11.5% (n=22) present elevated blood Mn (median=15.9 µg/L) of which 25.6% are having ID. Multiple regression analysis for Mn showed that blood Mn and Co were negatively associated with log ferritin concentrations (ß=-2.4; p<0.0001), (-0.015; P<0.0001) respectively, whereas log Cd showed positive association with Hb and log Co was negatively associated with Hb levels. Blood lead levels were low (median=5.4 µg/L). The prevalence of ID, anemia and elevated blood Mn was very high in these children. Conversely, low Pb exposure was observed. Improving iron status, would decrease anemia and restore normal Mn blood levels.

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