

Predictors of immunoglobulin resistance and cardiac complications in Kawasaki disease

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Kawasaki's disease (KD) is a common paediatric vasculitis potentially involving the heart, most significantly leading to the development of coronary artery aneurysms (CAA). The early institution of intravenous immunoglobulin (IVIG) is known to reduce this risk, however, response to this therapy is not uniform. Resistance to IVIG therapy can be predicted based on a scoring system, permitting the anticipation of adjuvant therapies. However this prediction model has not been validated outside the Japanese population. The aims of this study was to characterize the cardiac complications of KD and to identify predictors of IVIG resistance in our population.

Retrospective analysis of KD cases diagnosed between January 2006 and July 2018 followed up in a Paediatric Centre.

Forty eight cases of KD were included, 67% were male, with a median age of 36 months (IQA 17-89). Twenty two (46%) had echocardiographic changes. Coronary involvement was found in 12 (25%): 5 CAA and 7 coronary ectasies. In the acute phase, 10 had pericardial effusion, 3 mild mitral valve regurgitation and 3 ventricular dysfunction, one with cardiogenic shock. One presented with variable atrioventricular block. After the acute phase, one patient maintained left ventricular (LV) dilation and conduction's system involvement and one had LV hypertrophy. Among the variables tested as predictors of IVIG resistance, C-reactive protein (CRP) showed an AUC ROC of 0.789 (IC95% 0.632; 0.947) and the erythrocyte sedimentation rate (ESR) an AUC ROC of 0.781 (95% CI 0.585, 0.977). Cutoff points for CRP were 15.1 mg/dL with a sensitivity (Sn) of 0.778 and specificity (Sp) of 0.789 (OR = 13.125 IC 95% 2.271; 75.858), and for ESR 90.5 mm/h, with Sn 0.667 and Sp 0.857 (OR = 12.000 IC 95% [1.718; 83.803]). The logistic model with both variables presented was $p = 0.042$ and AUC ROC of 0.790 (95% CI [0.589; 0.992]). At the optimal cut-off point the Sn was 0.833 and Sp was 0.771.

About half of the patients had some form of cardiac involvement (coronary in 25% of the cases). Our results suggest that CRP and ESR values could be used as good predictors for IVIG resistance.