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Profile of resistance to IVIG treatment in patients with Kawasaki disease and concomitant infection

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Introduction (or Basis or Objectives): Kawasaki disease (KD) is a pediatric systemic vasculitis that can be associated with concomitant viral or bacterial infections. Patients with persistent or recurrent fever 36 hours after the end of intravenous immunoglobulin (IVIG) are considered to be resistant to treatment and are at increased risk for coronary complications. However, it is unknown how concomitant infection influences the response to IVIG treatment. The aim of this study was to determine the impact of concurrent infection on the prevalence of IVIG resistance and coronary outcome.

Methods: Retrospective study of 154 children (mean age at diagnosis: 3.4 ± 2.8 years) diagnosed with KD, between 2008 and 2016 in a tertiary pediatric university hospital, of which 59 (38%) had concomitant infection.

Results: Delay in diagnosis (>10 days of fever) was similar between patients with and without concomitant infection (7% vs 7%, $p=0.89$). Patients with concomitant infection were more likely to have fever 48 hours after initial treatment (36% vs 20%, $p=0.05$) and to be treated with a second dose of IVIG (33% vs 18%, $p=0.04$). Patients with infection had higher C-reactive protein at the time of diagnosis (148 vs 112 mg/L, $p=0.04$), which persisted after IVIG administration (111 vs 59 mg/L at 48 hours, $p=0.003$). However, there was no statistically significant difference in the prevalence of coronary artery (CA) complications (coronary artery Z-score > 2.5) between patients with and without concomitant infection (36% vs 39%, $p=0.68$).

Conclusions: Children with KD and concomitant infection are more likely to have persistent fever and elevated inflammatory markers after treatment requiring a second dose of IVIG. Nevertheless, this is not associated with an increased risk of CA complications. Larger scale studies are needed to help distinguish IVIG resistance from infection in children with persistent fever and guide management of this population.

