Introduction; Low levels of serum immunoglobulin G (IgG) before intravenous immunoglobulin (IVIG) treatment in Kawasaki disease (KD) were reported as one of the risk factors for coronary artery abnormalities (CAAs). This risk factor has to be reevaluated, because the dosage of IVIG has been changed from 0.2-0.4 g/kg for 5 days to 2 g/kg/1-2 days and the incidence of CAAs has been decreased.

Patients and Methods; We reviewed the clinical records of the KD patients who were admitted to Kagoshima Medical Association Hospital in Japan between January 2001 and August 2011. The patients who were given IVIG (2 g/kg/1-2 days) within seven days of illness and were evaluated for their immunoglobulin values (IgG, IgA, and IgM) before treatment were assigned. The values of immunoglobulin and diameters of coronary arteries were evaluated using Z-scores for age or body surface area, respectively. A patient with CAA was defined as a patient with coronary Z-score beyond 3.0 at 1 month of illness.

Results; The subjects were 197 KD patients and contained 22 non-responders and 16 patients with CAAs. Of these, 150 patients (76%) showed IgG values below zero (median; -0.72, 25 percentile/75 percentile; -1.4/-0.0). Non-responders showed higher IgGz values than responders; -0.26 (-0.83/0.34) vs. -0.79 (-1.40/-0.03), P=0.020. IgGz values were positively correlated with the duration of fever after initiation of IVIG treatment (r=0.095, P=0.025). Logistic regression analysis revealed IgGz values were the significant independent factors for non-responders (Odds ratio; 1.36, 95%CI; 1.002/1.849, P=0.048). ROC analysis showed that -1.0 of the IgGz value was the useful cut-off value. Its sensitivity was 77% and the specificity was 61%. Between the patients with CAAs and those without CAAs, IgGz values were not statistically different.

Conclusions; Low IgGz values were not a risk for CAAs in the present study. KD patients with higher IgGz values may have a risk of non-responsiveness for initial IVIG.