The increased serum levels of Interleukin-21 in Kawasaki disease

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Purpose: It has been reported that serum level of immunoglobulin E (IgE) is increased in patients with Kawasaki disease (KD) after acute phase. However the exact mechanism of increasing IgE is yet to be revealed. We investigated whether the interleukin-21 (IL-21) could be related with the high IgE in KD. Instead of IL-4, IL-21 was focused in this study because it has been reported that its level is increased in various autoimmune vasculitis.

Methods: From June 2008 to June 2010, 49 patients with KD admitted in Wonju Christian Hospital and 13 controls with high fever due to unknown infection who had no history of KD were included in this study. The sera from patients and controls were collected and checked in terms of immunoglobulin E (Chemiluminescent method, Siemens, Munich, Germany) and IL-21 (ELISA, eBioscience, San Diego, USA).

Results: The median age of patients with KD was 3 years of age (range: 0.4-10) and that of controls was 7 years of age (range: 1-12). The group of patients with KD was composed of 39 complete KD and 10 incomplete KD. Among patients with KD, 10 patients had coronary arterial dilatation (CAD) and 39 patients had no coronary complications. The median value of IL-21 in patients with KD was significantly increased as 466 pg/mL (range: 0-1544) while that value in controls was <62.5 pg/mL (range: 0- 825 pg/mL) (P < 0.01). We could not find the significant correlation between the serum level of IgE and that of IL-21 in patients with KD (Spearman R=0.2, P = 0.08) though 30% of patients with KD showed increased IgE more than 100 IU/mL. In addition, our data showed no significant difference between CAD group and non CAD group in terms of serum IL-21.

Conclusion: Our data showed firstly that IL-21 is increased in patients with KD. There was no significant correlation between high IgE and the level of IL-21.