

**Possible Involvement of Eicosapentaenoic Acid in Anti-platelet Therapy Effects and Possible Development of Artherosclerosis in Chronic Kawasaki Disease patients**

*Yahata T., Suzuki C., Yoshioka A., Okamoto A., Ikeda K., Hamaoka K.  
Department of pediatric Cardiology and Nephrology Graduate School of Medical Science,  
Kyoto Prefectural University of Medicine  
Kyoto, Japan*

**Background :**

There has been reported that Eicosapentaenoic acid (EPA) sorting of n-3 fatty acid and cardiovascular disease are relevant. EPA is commonly contained in blue-skin fish and incorporated into platelet membrane phospholipid by ingestion. The incorporated EPA is metabolized to thromboxane A3 (TXA3) and leukotriene B5 (LTB5) by phospholipase A2. These metabolites respectively antagonize TXA2 and LTB4 which are metabolites of Arachidonic acid (AA). Because TXA2 can promote platelet aggregation and LTB4 can enhance inflammatory action, the state that EPA/AA is high will be extremely important. We thought that it would become an interesting research issue even in Kawasaki disease and focused on it in this study.

**Methods :**

Twenty-four KD patients who were followed up more than five years were enrolled. EPA/AA ratio was measured by fasting blood sampling, Furthermore, platelet aggregation for an assessment of the effect of anti-platelet therapy and hydroperoxide suggesting oxidative stress as a relevant marker of arteriosclerosis, and %FMD as endothelial function were measured.

**Results :**

According to the results of platelet aggregation ( five grades; from class -2 to +2 ), patients are classified into three groups ( Group A: from class -2 to -1, Group B: class 0, Group C: from class +1 to +2 ). Although the EPA/AA values were distributed in a wide range in group A, those in group B and C were going to be intensively distributed in low values. Moreover, although the patients with enhanced oxidative stress were included in those with low EPA/AA values, we could not find such patients in those with high EPA/AA values. Furthermore, the %FMD in patients with high EPA/AA values tended to be higher than those with low EPA/AA values.

**Conclusions :**

In this study, the state that EPA is inferior to AA could be a reason for refractoriness of anti-platelet therapy in some chronic KD patients. The high values of EPA/AA possibly suppress the oxidative stress and EPA might contribute to inhibition of its development and progression of arteriosclerosis.