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Pharmacological Assessment of Anti-Platelet Drugs by Whole-Blood Aggregation and Serum Thromboxane B2 in Kawasaki Disease Patients

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Introduction: Anti-platelet agents are key to prevention of cardiovascular events in Kawasaki disease (KD) patients with coronary lesions (CALs). However, there exist side effects, including bleeding, hepatic damage, gastrointestinal dysfunction, aspirin resistance, and poor compliance with anti-platelet therapy. The latter is usually difficult to evaluate—at least by interview only—because the maintenance of compliance greatly depends on the patient's recognition of necessity for anti-platelet therapy. To assess the efficacy of anti-platelet drugs and simultaneously develop a method for evaluating compliance, we measured platelet aggregation and serum thromboxane B2 (TXB2) levels in KD patients.

Methods: Twenty out of 37 KD patients received anti-platelet therapy (mainly aspirin); the remaining did not receive any medication. Whole-blood aggregation was analyzed using collagen as the stimulus, and evaluated on the basis of platelet aggregation threshold index (PATI). Serum TXB2 was measured with a specific enzyme-linked immunosorbent assay.

Results: The PATI was high in subjects who underwent the anti-platelet therapy, with the exception of 1 case of non-compliance, and the level of serum TXB2 was lower than in non-treated patients. On the other hand, in the non-compliant patient, PATI and serum TXB2 levels were similar to those of the non-treated patients. After 2 months, PATI was increased, and serum TXB2 levels were decreased.

Conclusions: Whole-blood aggregation and serum TXB2 levels were useful for not only the pharmacological evaluation of anti-platelet drugs but also for the objective assessment of compliance.