

A Trial of LDL-apheresis Therapy for uremic and diabetic Neuropathy

S. Sasaki, K. Himuro, K. Kurioka, A. Yamada, *T. Maruyama and *S. Wada

Dept. of Internal Medicine and *Hemodialysis Section, Osaka Hospital of Japan Seamen Relief Association, Osaka, Japan

Objectives: It has been established that peripheral neuropathy is a common complication in uremic or diabetic patients. However there is no effective therapy for advanced neuropathy such as severe neuralgia, paresthesia, restless legs and burning feet syndrome. Recently, there are several reports that LDL-apheresis (LDL-A) is effective to the patients with arteriosclerosis obliterans in the lower extremities by the improving the peripheral circulation. In this study, we attempted LDL-A for the treatment of severe peripheral neuropathy, expecting the improvement of nerve function by increased blood flow of the microcirculation.

Patients and Methods: Repeat LDL-As were performed in four hemodialysis patients (three due to chronic glomerulonephritis, one due to polyarteritis) and three non-insulin depended diabetes with severe neuralgia, numbness, or restless leg syndrome. LDL-As were carried out once a week for eight or ten weeks using a dextran-sulfate column (Liposorber, Kaneka, Osaka, Japan). The plasma volume treated in each procedure was 3 L.

Results: The clinical symptoms of almost all patients, especially foot pain, chilling, numbness and restless legs syndrome, were improved during LDL-A treatment. After LDL-A therapy, motor nerve conduction velocities (MCV) in upper extremities in three patients and MCV in lower extremities in 4 out of 7 patients were increased. But no improvement was observed in sensory nerve conduction velocities and coefficient variation of R-R intervals. The plasma viscosities in all patients were significantly reduced after repeated LDL-As (before: 1.276 cp, 5W: 1.216 cp, after: 1.214 cp, $p < 0.05$). The increments of dorsal perflax blood flows measured with Laser Doppler Flowmeter were observed in 3 out of 4 patients at the end of LDL-A treatment.

Conclusion: We demonstrated that LDL-A improved clinical symptoms and MCV in some patients with severe neuropathy. Although the mechanism of these clinical and nerve functional changes remains unclear, LDL-A might be an effective therapy to uremic and diabetic neuropathy.