ABSTRACT. LDL apheresis using dextran sulfate cellulose beads has been recognized as the best therapeutics for severe familial hypercholesterolemia. It was approved for commercial distribution by Japanese government in 1986. Since 1986, more than 15,000 treatments have been done on about 600 patients. Most of these patients had coronary disease and whose total cholesterol level could not be kept under 250 mg/dl on drug therapy. Although the therapy does not have long history yet, the beneficial effects of LDL apheresis such as reduction of xanthoma and Achilles tendon thickness, alleviation of angina pectoris and prevention and regression of coronary atherosclerosis have been reported. No serious complication has been reported.

Today there is no doubt that high cholesterol levels are strongly linked to an increased risk of coronary heart disease. In 1987, we discussed and decided the definition of hyperlipidemia at the consensus conference of Japan Atherosclerosis Society (Table 1). In this definition, case of more than 220 mg/dl of total cholesterol is hyperlipidemia and the person who has more than 220 mg/dl of total cholesterol should be under some treatment for hyperlipidemia. For hyperlipidemia, dietary therapy should be tried at first and the second is drug therapy. However, sometimes diet and drug therapies do not have so good efficiency for severe familial hypercholesterolemia. LDL apheresis has gained considerable attention in recent year as the best therapeutics for severe familial hypercholesterolemia in Japan. Here we report the current situation of LDL apheresis in Japan.

1. Liposorber System for LDL Apheresis

1.1. Automated Column Regenerating Unit System
Figure 1. Automated column regenerating unit system for LDL apheresis

Figure 2. Adsorption of lipids with dextran sulfate cellulose beads (in vitro)

Figure 3. Adsorption of plasma proteins with dextran sulfate cellulose beads (in vitro)