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# Severe hypertriglyceridaemia. Treatment with plasmapheresis

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**To the To the Editor,**

The application of apheresis treatments is gaining more importance in nephrological practice. In patients with metabolic diseases, clear indications exist for apheresis procedures, such as in familial hypercholesterolaemia.[1] However, in other diseases, this type of treatment is applied only as an alternative when normal therapies fail to garner a response, such as in primary hypertriglyceridaemia (HTG).

Very little experience has been gained in the treatment of HTG with apheresis, although the few studies in the medical literature describing the treatment of this pathology with apheresis have obtained very positive results.[2,3]

The current guidelines of the American Society for Apheresis (ASFA) consider this a category III practice, and have approved its use in the case of HTG and in the presence or possibility of severe pancreatitis, which is quite probable when triglyceride (TG) levels exceed 2000mg/dl, and always when the patient does not respond to normal medical treatment. There are few comparative studies, but they have shown that 1-3 sessions of plasmapheresis in patients with pancreatitis and HTG can reduce symptoms by 46%-80%, the same results as for drug treatment.[4] In a study of 8 patients with recurring pancreatitis undergoing chronic treatment with plasmapheresis, the frequency of pancreatitis was reduced by 67% when TG levels were maintained below 150mg/dl, thus preventing patient hospitalisations and reducing health costs.

For filtration techniques, we can use double filtration or cascade filtration, where one filter separates blood from the plasma, which is then passed through a second filter with a smaller pore size that does not allow the passage of molecules with a larger molecular weight; in this case, TG.5 In the DALI (Direct Absorption of Lipoproteins) system, the TG are directly absorbed from the blood using a filter that consists of modified polyacrylate ligands immobilized on a polyacrylamide matrix.

Here we discuss the case of a 45 year-old male with no relevant medical history and no symptoms, but whose laboratory tests revealed a TG value of 7916mg/dl. The patient was admitted to our department for therapeutic and preventative plasmapheresis against pancreatitis. Only two sessions were administered. We used an apheresis monitor that first passed the blood through a plasma separating filter, and then the plasma was passed through another filter that trapped TG from plasma using hydrophobic interactions, finally returning the treated plasma to the patient. This procedure does not require plasma or albumin supplements. The plasma volume treated was 2.5 litres, calculated by patient weight and haematocrit values, with a mean time per session of approximately 1 hour and 45 minutes. After the first session, TG levels decreased to 1500mg/dl. After the second session, the value was 476 (Table 1 and Table 2). The patient was then discharged with prescriptions for rosuvastatin at 10mg/24h and fenofibrate at 145mg/24h. Currently, the patient is asymptomatic, with good lipid control under medical treatment, and does not require hospitalisation despite such high levels of TG.

With this case, we wish to awaken interest amongst nephrologists in understanding and implementing apheresis techniques. This is another type of extracorporeal purification that can obtain positive clinical results, avoiding unnecessary health costs and hospitalisations, as in our case.

**Table 1.** Total cholesterol, triglycerides, HDL, and LDL levels after the first apheresis session

| | Start | 1 hour | End |
|---|---|---|---|
| Total cholesterol (mg/dl) | 1104 | 980 | 675 |
| Triglycerides (mg/dl) | 7916 | 2940 | 1500 |
| HDL (mg/dl) | 63 | 57 | 50 |
| LDL (mg/dl) | 447 | 347 | 327 |

HDL: high-density lipoprotein; LDL: low-density lipoprotein.

**Table 2.** Total cholesterol, triglycerides, HDL, and LDL levels after the second apheresis session

| | Start | 1 hour | End |
|---|---|---|---|
| Total cholesterol (mg/dl) | 602 | 337 | 267 |
| Triglycerides (mg/dl) | 1270 | 512 | 476 |
| HDL (mg/dl) | 35 | 23 | 18 |
| LDL (mg/dl) | 307 | 231 | 162 |

HDL: high-density lipoprotein; LDL: low-density lipoprotein.

**Conflicts of interest**

The authors affirm that they have no conflicts of interest related to the content of this article.


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