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Double Standards? - New Modalities of Therapeutic Plasma Exchange

Ivan Durlen, Petar Babic, Matija Crnogorac, Ivica Horvatic
Department of Internal Medicine-Nephrology, Dubrava University Hospital, Croatia

Case Study : Therapeutic plasma exchange (TPE) is an apheresis method used to remove abnormal proteins, antibodies or other harmful molecules from plasma and then replace it with either fresh frozen plasma (FFP) or albumin solution. More selective modalities are emerging including double filtration plasmapheresis (DFPP), a semi-selective modality that uses two types of filters with different pore size to additionally separate plasma so that the lower molecular weight components such as albumin are not wasted and are returned to the bloodstream. This reduces the economic cost, the replacement fluid volume and the threat of volume overload. By using filters with different pore sizes, we can select the molecular weight of the discarded proteins and optimize the process for a variety of disorders. Rheopheresis eliminates only high-molecular-weight plasma molecules (e.g. fibrinogen, alpha-2-macroglobulin, low-density lipoprotein cholesterol, IgM) with an intention to reduce plasma viscosity and endothelial dysfunction, improving blood flow, without using any replacement fluid. Consequently enhancing tissue oxygenation and chronic wound healing. In Dubrava University Hospital, TPE is a gold standard for multiple disorders, but in the last year we have implemented new procedures like DFPP and rheopheresis for certain indications with great clinical results without any adverse events. A total of 8 patients underwent DFPP procedures and 2 patients underwent rheopheresis procedures (still active). Indications for DFPP were Guillain-Barre syndrome, anti-GBM disease, thyroid storm and heparin-induced thrombocytopenia. 70% less replacement fluid was used (compared to regular TPE procedure). The results of the treatments were comparable to standard TPE procedures. Indications for rheopheresis were micro-vascular dysfunction due to hyperviscosity (elevated fibrinogen) and calciphylaxis. During the first period 2 procedures were done weekly, and later once weekly with favorable results and better wound healing. DFPP and rheopheresis are two novel procedures, that will by our experience, have a great impact in our future.