International Fibrinogen Research Society

Mini-symposium

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Organization

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Fibrinogen glycosylation of end-stage renal disease patients on peritoneal dialysis

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Glycosylation may have significant impact on structure and function of a certain protein. Patients with end-stage renal disease (ESRD) are at high risk for developing cardiovascular complications with their haemostasis being characterised with delayed fibrin clot formation, increased clot strength, and delayed cloth lysis. Since fibrinogen is the key protein in the processes of fibrin clot formation and lysis, we isolated this protein from the plasma of patients with ESRD on peritoneal dialysis (ESRD-PD) and analysed glycosylation of the native whole fibrinogen and its individual chains by lectin-based microarray and lectin blotting. Compared to healthy controls, fibrinogen from ESRD-PD patients had increased levels of bisecting biantennary bigalactosylated (A2BG2) glycan and decreased levels of core-fucosylated biantennary (FA2) glycan. The distribution of glycans on individual chains was also altered, with the γ-chain being the most affected. Increased levels of multi-antennary N-glycans in ESRD-PD patients were also associated with the type of dialysis solutions, whereas an increase in the fucosylation levels was strongly related to the peritoneal membrane damage. Investigation of fibrinogen glycosylation can offer better insight into fibrinogen-related complications observed in ESRD-PD patients and, additionally, contribute to prognosis, choice of personalised therapy, determination of peritoneal membrane damage, and the length of the utilization of peritoneum for dialysis.

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