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## Serum fructosamine as a marker for glycemic control in patients with diabetic nephropathy

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**I**ntroduction: Diabetes is a chronic, metabolic disease characterized by elevated levels of glucose in the blood (hyperglycemia). Uncontrolled diabetes can cause several long-termed health complications. One of major complication is the diabetic nephropathy (DN). It is characterized by damage to the kidney small blood vessels and can advance to kidney dysfunction and failure. To reduce the risk, it is essential to maintain good blood glucose control. Prolonged hyperglycemia in diabetic patients is associated with elevated serum fructosamine levels. Fructosamine (FA) is a measure of glycation of circulating blood proteins and reflects the average glycaemic level over the preceding 2-3 weeks. Its reliability in patients with chronic kidney disease (CKD) is area of ongoing research. In the present study we aimed to test FA as a glycemic marker in diabetic patients developing DN. Materials and methods: A prospective single-center, cross-sectional study was performed, including DM patients (with and without DN) and control CKD patients without DM. Serum FA was determined by nitroblue tetrazolium (NBT) colorimetric method. Results: We found significantly higher serum FA levels in DM patients compared to control group. We also demonstrate a positive correlation of patient's serum FA levels with fasting blood glucose levels. Our comparative analysis of serum FA levels in DM patients with DN with the FA levels in DM patients with other (non-diabetic) kidney disease, showed a considerably higher serum FA concentration in DM patients with DN compared to those without DN. Conclusions: Maintain stable blood glucose levels is fundamental in manage diabetes and prevent complications such as diabetic nephropathy. Our study demonstrates that serum FA levels are closely associated with glucose levels in patients with DM and is significantly higher than in non-diabetics. The FA differentiates well between diabetics with and without DN and therefore appear a promising marker for glycemic control in diabetic patients with DN.

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### Biography

Rositsa Tsekovska has research on the field in glycation, focusing on understanding the biochemical processes and molecular mechanisms associated with glycation and its implications in health and disease. She investigates the molecular pathways involved in glycation reactions, explores the role of advanced glycation end products (AGEs) in the pathogenesis of chronic diseases such as diabetes and renal complications. She identifies and characterizes molecular biomarkers associated with glycation and AGEs accumulation, develops assays to quantify their levels in biological samples as tools to identify diabetic nephropathy. Her collaboration with clinicians and other healthcare professionals is essential to translate basic research findings into clinical applications and improve patient outcomes.

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