

Prevention and treatment of diabetic nephropathy.

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Increasing number of diabetic patients develop different stages of renal failure. However, often an inappropriate parameter, the serum creatinine is measured as a marker of glomerular function. Calculated glomerular filtration rate or endogenous creatinine clearance are suggested to be used for the estimation of the glomerular function. Important structures preventing proteinuria in the kidney are glomerular basement membrane, podocytes and proximal tubular cells. In diabetes mellitus loss of nephrin of podocytes can play a role in the development of microalbuminuria, and podocyte desquamation may result in the progression to proteinuria. In diabetes mellitus there is an increased formation of advanced glycation endproducts (AGE), of which the only elimination organ is the kidney. The AGE induce proteinuria and atherosclerosis. Therefore, in diabetes mellitus a vicious circle develops due to proteinuria, nephron loss and accumulation of AGE, which play a role in the initiation and progression of diabetic nephropathy and atherosclerosis. Angiotensin converting enzyme inhibitors and angiotensin receptor blockers having antiproteinuric effect may decrease the risk of diabetic nephropathy and atherosclerosis. Improvement of carbohydrate metabolism with a consequential decrease in the formation of AGE is an important contributor to the prevention and treatment of diabetic nephropathy and atherosclerosis.

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