

Renal Function and risk of foot ulceration - a close relationship

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Diabetic nephropathy and diabetic foot syndrome are the two major complications of Diabetes. Until now little is known of a potential relationship between renal function and foot at risk for ulceration. This study was conducted to investigate a possible association between the above parameters.

Patients and Methods: 120 patients were studied. 1) 90 (ninety) type 2 diabetic patients and 30 non diabetic dialyzed. 2) Males: 94, mean age 66 ± 12 yrs and mean duration of diabetes (diabetic population) 14.6 ± 9 yrs - mean age 67 ± 12 yrs. The patients were classified according to the kidney damage using the GFR (Group 1: GFR >90 ml/min, Group 2: GFR <60 ml/min, Group 3: Diabetics on dialysis, Group 4: non diabetic patients on dialysis) Neuropathy disability score was estimated in all the patients using a detailed clinical examination (NDS for all nerve fibers - NDS₁ for small fibers). Vibration perception threshold was determined using a Biothesiometer. **Results:** a) Diabetic dialyzed patients had more severe overall and small fiber neuropathy than the non diabetic dialyzed patients (NDS 5.4 ± 3.6 vs 0.61 ± 1.26 $p<0.05$, VPT: 36 ± 13 vs 19 ± 8 $p<0.05$, NDS₁ 3.9 ± 2.6 vs 0.5 ± 0.99 $p<0.05$). b) No significant differences in severity of neuropathy (NDS, NDS₁, VPT) were detected between the other diabetic groups (Group 1 vs Group 2). c) In multivariate analysis GFR, age and duration of diabetes were significant risk factors for 1) severe neuropathy - foot at risk (NDS ≥ 6 $p<0.05$) or VPT ≥ 25 . d) 1ml/min reduction of GFR raises the probability of at risk diabetic foot by 2% (exp B: 0.98 $p<0.05$) **Conclusion:** Reduced renal function can be considered as factor strongly associated with the development of foot at risk for ulceration. Furthermore more attention should be paid be on the diabetic patients with renal impairment for detection those at risk for foot ulceration.