

## [P58] ALBUMINURIA AS PREDICTIVE RISK FACTOR FOR FOOT ULCERATION IN PATIENTS WITH DIABETES MELLITUS

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**Aim:** Prevention of diabetic foot consists in screening for persons at risk of foot ulceration. While neuropathy and peripheral artery disease (PAD) are well-known ulceration risk factors, the association of albuminuria (Alb) with diabetic ulcer occurrence has not yet been clearly described. Although clinical tests to examine feet are simple, in reality this examination is often neglected due to various reasons and patients seek specialised clinic only when ulceration already develops. In the clinical practice a laboratory marker of foot ulceration risk would enhance identification of at-risk patients and enable more effective specialised care. The aim of this study was to examine the association of Alb with risk factors of foot ulceration – neuropathy and PAD in ulcer-naive patients with diabetes.

**Method:** In prospective study we included 87 consecutive ulcer-naive patients with diabetes (mean age 66.2 ys  $\pm$ 10.4, 70% men, 93% T2DM, mean diabetes duration 8,5 ys  $\pm$ 6.4, mean HbA1C 53 mmol/mol IFFC, 25% treated with insulin, 48% smokers, past or current) treated at our outpatient clinics which went through preventive foot examination at the foot clinic. Each patient filled a structured questionnaire focused at neuropathy symptoms, specialised nurse examined the feet for neuropathy (use of 10-g monofilament, biotheziometer), and ischaemia (ABI, pulsation of peripheral arteries), measured surface temperature of feet and assessed occurrence of foot deformities. The following clinical characteristics of the patients were obtained from the medical records ( BMI, presence of retinopathy, Alb, level of creatinine, lipids, TSH). Neuropathy was defined as the loss of 10-g monofilament perception and/or reduced vibration perception threshold with a biotheziometer ( $> 25V$ ). PAD was defined as the absence of at least one pedal pulse and/or ankle-brachial index below 0.9. Alb was defined as an albumin-to-creatinine ratio of  $>2.6$  in men /  $>3.6$  mg in women /mmol creatinine in a spot urine sample. The patients were divided into two groups according to presence of Alb: group 1 patients with normoalbuminuria (n=63), group 2 patients with Alb (n=24). Clinical characteristics of both groups of patients were statistically compared. The association of Alb and PAD and neuropathy was assessed both individually and in as combined risk (presence of neuropathy, or PAD, or both) using the Mann-Whitney and Fisher tests.

**Results:** Clinical characteristics of the patients in both groups did not show a significant difference except for BMI (p=0.037) with higher values in patients with Alb. 54.2% patients with albuminuria suffer PAD while only 22.2% patients with normoalbuminuria suffer PAD (p = 0.008). Neuropathy is present in 62.5% patients with albuminuria and 28.6% normoalbuminuria (p=0.006). Combined risk (presence of neuropathy, or PAD, or both) was proved in 83% patients with Alb while only in 41% (p=0.001) patients with normoalbuminuria. Specificity of Alb as screening test of PAD, neuropathy or combined risk is 82%, 83% and 90%, respectively.

**Conclusion:** We found a statistically significant association between Alb and risk factors of foot ulceration - neuropathy and PAD. Patients with albuminuria are at a relevant risk of foot ulceration thus clinical foot examination is urgent. Frequent foot checks, repeated education and long-term dispensarisation at specialised clinics are the mainstay of ulceration prevention for these patients.