

PRIZE P2

BMI and Nerve Dysfunction in Diabetic Patients

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Recent epidemiological studies have found a strong correlation between diabetic neuropathy and body weight. Furthermore small fiber neuropathy tends to develop within a few years of diabetes as relatively early complication. Early recognition of potentially modifiable risk factors for diabetic neuropathy - a known risk factor for foot ulcers - is crucial if we are to succeed in prevention of diabetic foot lesions.

The aim of the present study was to investigate the relationship between BMI (modifiable risk factor) and small and overall nerve fiber dysfunction in diabetic patients. Patients - Methods: 278 diabetic patients were investigated. Males=147, Mean age (yrs) was $63,31 \pm 11,25$, Mean duration of diabetes (yrs) $12,85 \pm 8,56$. The Neuropathy Disability Score (sensory signs) was used to identify those patients with overall nerve dysfunction ($NDS \geq 3$: abnormal). The sum of deficits of pain and cold sensation was used to identify any impairment of small fiber dysfunction ($NDS_1 \geq 2$: abnormal). BMI was calculated as usual (kg/m^2). Statistical analysis was performed in a univariate and multivariate model (level of significance 0,05). Results: 1) BMI < 25 (NDS_1 : $0,4 \pm 0,3$), $25 < \text{BMI} < 29$ (NDS_1 : $0,53 \pm 1,05$), $\text{BMI} \geq 30$ (NDS_1 : $1,04 \pm 1,01$). $p < 0,05$ for every comparison between two groups. Correlation between BMI and NDS_1 was significant (p : 0,05 r^2 : 0,026). 2) BMI < 25 (NDS : $0,7 \pm 0,8$), $25 < \text{BMI} < 29$ (NDS : $1,1 \pm 0,9$), $\text{BMI} \geq 30$ (NDS : $2,01 \pm 2,0$). $p < 0,05$ for every comparison between two groups. Correlation between BMI and NDS was also significant (p : 0,05 r^2 : 0,026). 3) In the multivariate analysis BMI and duration of Diabetes were significant factors for overall nerve dysfunction ($p < 0,05$). Conclusion: The present study shows that nerve fiber dysfunction is also associated with the body weight e.g. elevated BMI. This finding supports the role of other factors (modifiable) apart from the already known in the pathogenesis and progression of diabetic neuropathy and prevention of foot ulcers. Larger studies are needed to confirm this finding.