P22

Vibration and Monofilaments testing to identify high risk patients. Is it enough?

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Peripheral neuropathy increases the risk of foot ulceration due to lack of pain sensation and contributes to over 60% of lower extremity amputations in diabetic patients. Vibration Perception Tests and Semmes Weinstein Monofilaments are advocated in many clinical guidelines to identify neuropathic patients although both tests are accurate tests for large fiber neuropathy. On the other hand it is known that only small fibers carry information regarding pain and temperature sensation. The present study was conducted to investigate the predominant type of nerve fiber dysfunction in diabetic patients in relation to diabetes duration, age, sex and type of diabetes. **Patients and Methods**: 410 diabetic patients, randomly selected, included in the study. Males were 186 (45.4%) and 370 (91%) with type 2 diabetes. Mean age and duration of diabetes were 65.67 ± 11.65yrs and 14.71 ± 10.47yrs respectively.The Neuropathy Disability Score (NDS) was used to quantify the overall nerve dysfunction on clinical examination. A NDS greater than 5 considered abnormal for overall nerve function and $NDS_1\geq2$ for small fiber dysfunction -SFD- (temperature and light touch) and $NDS_2\geq2$ for large fiber dysfunction -LFD- (vibration) were considered abnormal too. The duration of Diabetes was divided in 4 stages: 0-5, 6-10, 11-15 and >16. Age and sex were recorded too. **Results:** 1) Neuropathy was diagnosed in 179 patients (43.7%) (Group A) whereas in the remaining population were 231 patients (56.3%) (Group B). 2) 26.8% of all the patients expressed small fiber dysfunction and 14.1% expressed large fiber dysfunction ($p<0.001$), 3) SFD was significantly more frequent in all stages of diabetes duration than the LFD ($p<0.05$ for all). 4)The odds ratio for small fiber damage vs large fiber dysfunction was higher in all the groups of the duration 5) In the multivariate analysis age, duration of diabetes, sex but not Type of Diabetes were found as significant factors affecting nerve fiber damage (small and large fibers). 6) Testing for only LFD to identify patients at risk of FU did not include all the neuropathic patients. Substantial percentage of those with SFD was not identified as at risk patients (10%, 44%, 43% and 25%) for all the stages of Diabetes duration. **Conclusion:** Careful Physical examination is most useful in identifying patients at risk for FU. Vibration and Monofilaments testing alone can not be considered as accurate methods if we are intend to reduce the incidence of foot lesions and subsequently amputations.