[P23] EVALUATION OF D-FOOT, A TOOL TO IDENTIFY THE RISK FACTOR FOOTDEFORMITY IN DIABETES

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Aim: There are several foot quantitative assessments that are commonly used to identify the risk factor ”foot deformity” in diabetes. The aim of the study was to evaluate the reliability of some of the continuous variables.

Method: An eHealth tool, D-Foot, for objective risk classification for patients with the risk of developing diabetic foot ulcers were used. Out of a total of 22 assessments in the software, four continuous variables that specifically capture foot deformities were extracted. These four variables were: passive range of flexion at metatarsal phalangeal joint 1; maximum toe height, maximum flexion in the ankle joint and navicular drop test. Measurements were carried out with a goniometer and with a ruler respectively.

The D-Foot software was constructed for daily use by Prosthetist Orthotists (PO) and podorthotists at the Departments of Prosthetics and Orthotics (DPO). The purpose with the D-Foot was to facilitate an objective risk stratification and foot assessment in diabetes. Inter-reliable tests took place 2014-2015. A total of 97 patients with diabetes (type 1 n=33, type 2 n=64) referred to the DPO were included. Mean age was 64 ± 13, duration 17 ± 14 years and BMI 28 ± 5. All four DPO’s in the Region Västra Götaland participated: Göteborg (n_G=38), Trollhättan (n_T=22), Borås (n_B=14 and Skövde (n_S=23). Every patient was evaluated by two clinicians. After that the first PO had completed the assessment the second PO examined the feet using D-foot on a tablet. The clinicians where experienced PO or Pedorthotists.

In the analyse of inter-agreement a variant of Pearson’s correlation coefficient (r) and intra class correlation coefficient (ICC) were used, named the weighted sum. This summery statistic takes into consideration the fact that the four DPO included a different number of patients. Agreement for each DPO’s were also calculated.

Results: Inter-agreement (weighted sum) was: for passive range of flexion at metatarsal phalangeal joint 1 (r=0.65; ICC=0.62); maximum toe height (r=0.52; ICC=0.44), maximum flexion in the ankle joint (r=0.72; ICC=0.66) and navicular drop test (r=0.40; ICC=0.32). An example of the variation of the inter-agreement (r and ICC) is given for passive range of flexion at metatarsal phalangeal joint 1: Gothenburg r=0.75, ICC= 0.75; Trollhättan r=0.56, ICC=0.55, Borås r=0.33, ICC= 0.17 and Skövde r=0.75, ICC= 0.75.

Discussion: Weak agreement in some variables were noticed and regional discrepancy was found. Single DPO reported lower values, in general, for hallux joint motion as compared with other DPO.

However, a new technique was introduced for these two measurements and can possible explain a low agreement.

The DPO’s in Göteborg and Skövde in general showed higher agreement regarding the ICC on the variables involving a goniometer as compared with the DPO´s in Borås and Trollhättan. The DPO in Borås had however better results of variables obtained with an ordinary ruler.

It makes no sense to believe that patients with diabetes in the southern part of the studied region in general have less mobility in their toes. This study highlights the need to facilitate foot assessment for PO´s.

Conclusion: It is more difficult than expected to evaluate the feet in diabetes and to assess whether a foot present with the risk factor foot deformity or not. There is a need for further research to find robust method to use in the foot assessments in diabetes. In the second revision of the eHealth tool D-Foot assessments with low agreement are considered a) to be explained with an easy-to understand manual or b) to be removed.