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The structure of foot deformities in patients with diabetes mellitus type 2 in the North-West region of Russia

N. Mekhova^{*}, V. Bregovskiy[♦].

^{*}-City hospital, Cherepovets; [♦]-Municipal diabetes Centre, Saint-Petersburg, Russia

Background and Aims: Foot deformities resulting from neuropathy, abnormal biomechanics, congenital disorders, prior surgical intervention may result in high focal pressure and increased risk of ulcers. The prevalence of deformities varied in different populations. We aimed to estimate the prevalence and the role of deformities in Cherepovets among patients with diabetes mellitus (DM) type 2.

Patients and Methods: 1048 consecutive outpatient DM type 2 patients were examined. Mean age $60 \pm 10,1$ yrs, men/women 25,1/74,9%, duration of DM $9 \pm 7,8$ yrs, HbA1c $8,85 \pm 2,1\%$. The following deformities were examined: hammertoes, flat-foot, hallux valgus, postsurgical, Charcot arthropathy. Risk of foot ulcer stratified according to guidelines of International consensus on the diabetic foot. **Results:** The prevalence of deformities was 67,7%. The most prevalent were flat-foot (64,8%), hallux valgus (38,1%) and hammertoes (32,8%). 7,5% patients had 3 and more deformities. The most often combination of deformities was flat-foot with hallux valgus (18,5%). Women characterized with higher prevalence of deformities (72,3%) than men (53,6%). The maximal number of deformities per patient was noticed in patients from 50 to 80 years old. 62,8% of patients with deformities had obesity compared with 57,8% of patients without it. The very high risk of ulceration associates with postsurgical deformities and Charcot arthropathy (38,9% and 16,7% in this group). **Conclusion:** The prevalence of deformities in study population was very high. Postsurgical deformity and Charcot arthropathy are independent predictors of foot ulcers. Other deformities significantly increase the risk of ulceration in combination with neuropathy and ischemia. The risk factors of deformity were female gender, age, obesity. These data suggests the necessity in accomodating these deformities in properly fitting shoes to prophylaxis of foot ulcer in type 2 DM.