Lower limb functional ability in middle-aged Estonian population with different radiographic grades of knee osteoarthritis

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Background

We have demonstrated, that in some cases the functional limitations and radiographic features of knee OA are present already in the early 40s (Tamm 2003, 2004, 2011)

Aim:

To investigate lower limb functional abilities in patients with early knee osteoarthritis (KOA) in a population-based symptomatic population (Võru) sample.

Material

A total of 183 subjects (51 male and 132 female), aged 38 – 58 (mean 49 ± 6.0) years, were examined

Methods

Radiographs of the tibiofemoral (TF) and patello-femoral (PF) compartments were assessed (0-3) according to Nagaosa (2000). Lower limb functional ability was assessed according to:

(i) timed UP & Go test (TUG, sec),

(ii) rising from the lowest level of the test-chair (CRT, cm),

(iii) ability to step up with the left and right leg (SU, cm),

(iv) standing up from the test-chair (times per 30 sec).

Statistics: STATISTICA-10 program and the Mann-Whitney U-test were used

Results:

Radiographic TF OA was found in 60% of the women (16% with grades 2-3) and in 80% of the men (27% with grades 2-3). Sixty-one percent of the patients had PF OA, among them 16% with an advanced grade (**Table 1).**

Three out of four functional performance tests discriminated between groups KOA grade 0 and grades 2+3 (p =

0.04 - 0.0002), particularly in PFOA cases (**Fig.1-2**).

In female patients the CRT and SU tests were useful to suspect even grade 1 KOA (p=0.05). Regression analysis revealed significant contribution of gender, age and BMI to the variability of the results of CRT and SU tests.

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Table 1 Radiographic grades and types of knee OA

Grade and type of OA	n	PFOA=0	PFOA=1	PFOA=2+3
TFOA=0	63	39	24	0
TFOA=1	84	31	48	5
TFOA=2+3	35	2	8	25
Total	182	72	80	30

Figure 1. Different grades (0-3) of PF KOA and functional ability of lower limb according to functional tests

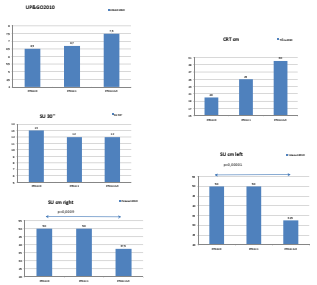
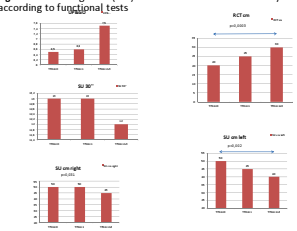


Figure 2 Different grades (0-3) of TF KOA and functional ability of lower limb according to functional tests



Conclusions:

An unexpectedly high prevalence of limitations in knee function was found among the studied middle-aged population.

Quantitative assessment of the patient's ability to use his/her lower limbs helps screen out patients with probable radiographic OA.

Besides radiographic changes in the knee joint, also gender, age and BMI of the patient have an effect on the results of the performance tests.