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IN ESTIMATING FALL RISK IN OSTEOPOROTIC PATIENTS
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Objectives: Falls of the elderly cause 90–100% of fractures and lead to a considerable decrease of functionality and the quality of life. The risk group comprises patients with diagnosed osteoporosis and those who have already sustained falls. The aim of the study is to assess the efficacy of the Timed Up and Go test (TUG) and the Tandem Walk test (TW) in evaluating fall risk in patients with diagnosed osteoporosis.

Materials/Methods: The study was performed between June and December 2009 among 100 patients of Krakow Medical Centre. Inclusion criteria comprise: female, age above 65 years, osteoporosis diagnosed on the basis of densitometric examination, previous falls, willingness to participate in the study. Among 100 volunteers TUG and TW tests were performed in accordance with methodological guidelines. The results were analyzed in the statistics software package Statistica v. 8.0.

Results: The average age of the patients was 73 years (65–89 years, SD 5.6), the average value of BMI factor was 27.04 (15.62–41.93; SD=4.68). The average time of performing the TUG test was 15.11 seconds (7.71–58.87 s, SD=7.74), and the average time of performing the TW test was 16.09 s (6.46–30.96 s; SD=5.34). The results of the above-mentioned tests were analyzed in relation to a fall sustained in the year preceding the study (58 fallers vs. 42 non-fallers). The average time of the TUG test for fallers was 17.24 s (SD=10.58) and the average time of the TW test was 17.85 s (SD=5.46). The group of non-fallers achieved the following average results: the TUG test—13.56 s (SD=4.04) and the TW test—14.81 s (SD=4.92). The difference in average results of the TUG test between fallers and non-fallers is t=-2.13 (p=0.038), whereas in case of the TW test it is t=-2.87 (p=0.005). The differences are statistically significant.

Conclusions: The patients who reported a fall in the year prior to the study achieved lower TUG and TW test results as compared to non-fallers, which implies the applicability of both tests in evaluation of fall risk in patients with osteoporosis.

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REGULATORY LOOPS INVOLVING IGFBP5
ACCOUNT FOR A FINE TUNING REGULATION
OF OSTEOBLAST ACTIVITY
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Objectives: To study the involvement of the IGFBP5 in the regulatory loop mediated by the c-Src and IL-6 interaction in osteoblasts.

Materials/Methods: Primary osteoblast cultures were treated with the c-Src inhibitor PP1, with recombinant human (rh)-IL-6 and soluble IGFBP5 in order to study the impact of these modulations on osteoblast differentiation, evaluated by RT-PCR and Western blot analysis. We also transfected primary osteoblasts with constructs of interest and treated mice with the c-Src inhibitor CGP076030, evaluating IL-6 expression in tibia by RT-PCR, and bone parameters by histology/histomorphometry.

Results: Treatment of primary mouse calvarial osteoblasts with 5 ng/ml rhIL-6 time-dependently increased c-Src activation, which however became robust only after 8 days, suggesting the involvement of mediators. We found that IL-6 treatment stimulated IGFBP5 mRNA up to 2.5-fold (n=3, p<0.05), compared to controls. To confirm the involvement of IGFBP5 as intermediate factor, we treated osteoblasts for 30 min with increasing concentrations of IGFBP5, showing progressive c-Src-activating phosphorylation, with no further changes in the presence of IGF-1, therefore suggesting a direct, receptor-mediated, effect of IGFBP5. Surprisingly, in osteoblasts treated with the c-Src inhibitor PP1, or transfected with a kinase-dead c-Src construct, we found a 4.95-fold increase of IGFBP5 over controls. This result was confirmed at both mRNA and protein level in bone of mice treated in vivo with 100 mg/kg/day of the c-Src inhibitor CGP076030, indicating that the c-Src-mediated effect on IGFBP5 expression contrasts