

# **The efficiency of diacerein in patients with osteoarthritis, type 2 diabetes mellitus and obesity**

*Oliinyk M., Zhuravlyova L.*

Kharkiv National Medical University, Kharkiv, Ukraine

Department of Internal Medicine #3

**Purpose.** To study the influence of diacerein on dynamics of inflammation markers (cytokine and C-reactive protein) and the course of disease in patients with osteoarthritis (OA) combined with type 2 diabetes mellitus (T2DM) and high body mass index.

**Materials and methods.** A total of 35 patients (10 men and 25 women, mean age  $57.51 \pm 1.13$  years) were examined in Kharkiv Regional Hospital. All patients had OA, combined with T2DM and obesity. Baseline characteristics of patients included history of OA ( $8.29 \pm 0.57$  years) and T2DM ( $8.45 \pm 0.80$  years). X-ray examination of the knees was performed for all patients. Also, patients were evaluated by the anthropometric data, global knee pain [visual analog scale (VAS)], the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) (scoring of pain, stiffness, lack of joint function and total score). The survey plan included: level of C-reactive protein (CRP), indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR). The level of TNF- $\alpha$  and IL-1 $\beta$  was determined by ELISA. The level of HbA1C was  $<7.5\%$  in all patients. Patients were assigned for diacerein, 50 mg 1 time per day during the first two weeks and then 50 mg twice daily for 3 months. All of the reported adverse events were documented during the study period.

**Results and discussion.** The effect of treatment was observed in 4-5 weeks and increased throughout the treatment period. The efficacy of treatment was evaluated by WOMAC-index. Obtained data demonstrated that diacerein was associated with a significant reduction of pain intensity and stiffness in 3 months (- 36%, and - 12.5%, respectively). The improvement in functional abilities by WOMAC index (functional insufficiency) was significantly better with diacerein by day 90, 23,2% respectively. However, it should be noted, that patients with obesity grade III demonstrated no significant improvement of the pain level by WOMAC scale,

although improvement of the functional state and decreased stiffness of the joints was present. CRP level decreased significantly from  $17.54\pm2.58$  mg/ml to  $5.66\pm1.98$  mg/ml ( $p=0.003346$ ) within 3 months after treatment. The levels of proinflammatory cytokines underwent significant changes as the result of treatment: IL-1 $\beta$  decreased from  $84.23\pm0.98$  to  $78.77\pm1.47$  ( $p=0.002105$ ), TNF- $\alpha$  decreased from  $91.85\pm0.85$  to  $84.31\pm1.91$  ( $p=0.001474$ ). Diacerein was generally well tolerated. During the 3-months follow-up period there were 2 adverse events, which were associated with diarrhea, but only 1 patient needed cessation of therapy. Diacerein had no negative effects on the course of T2DM.

**Conclusion.** Obtained data suggest that diacerein is an effective agent for treatment of knee OA. Diacerein has a positive effect on the reduction of pain and improvement in functional abilities of patients with OA and concomitant T2DM and obesity. Treatment with diacerein is associated with decrease of proinflammatory cytokines in blood. In addition, the drug is well tolerated by patients.