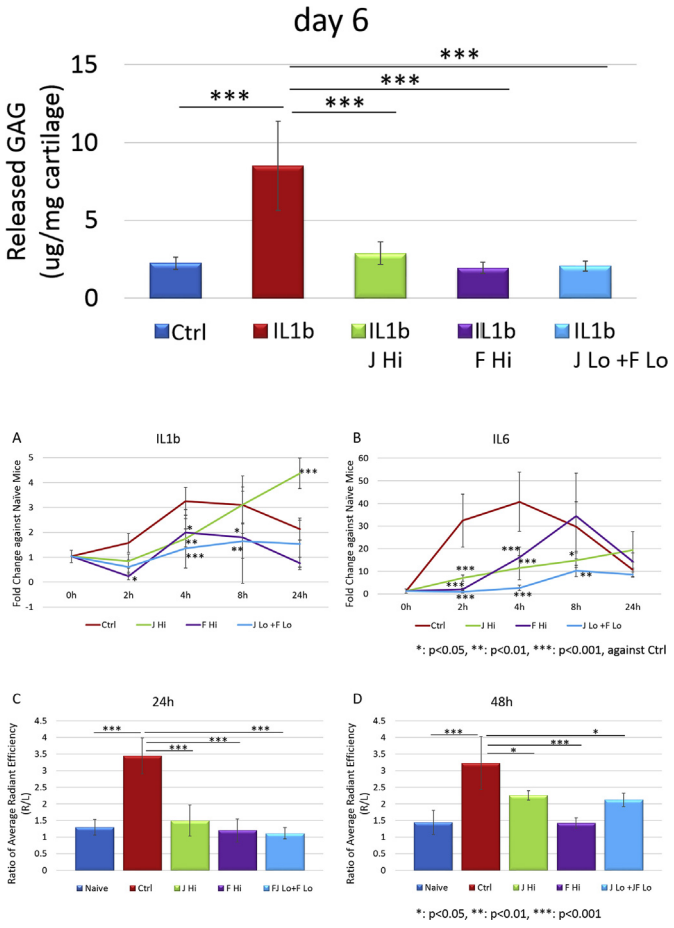

660
SYNTHESIS AND CHARACTERIZATION OF GOLD NANOPARTICLES COMBINED WITH CURCUMIN AND ITS EFFECT ON EXPERIMENTAL OSTEOARTHRITIS IN MICE

W. N. Silva Campos, V.S. Marangoni, D.A. Sonego, M.A. Andrade, E.M. Colodel, R.L. de Souza, Sr.. *FEDERAL Univ. of Mato Grosso, Cuiaba, Brazil*

Purpose: The aim of study was the synthesis and characterization of a system combining gold nanoparticles (AuNPs) to curcumin and evaluate its therapeutic potential in an experimental model of osteoarthritis (OA) in mice by destabilization of the medial meniscus (DMM).
Methods: Thirty two C57BL6 strain male mice, 8 weeks of age, were used. For the experimental induction of osteoarthritis we used DMM destabilization technique proposed by Glasson et al. (2007). For the synthesis of AuNPs we used the hydrochloride polyallylamine (PAH) as a stabilizer and sodium borohydride as a reducer agent and characterizations were performed by UV-VIS spectroscopy, dynamic light scattering (DLS) and determination zeta potential. Four groups were formed, each with eight animals, named as A (360 μg of AUNP-PAH), B (20 μg of curcumin), C (360μg of AUNP-PAH-Curcumin) and D (sham) thus distributed in accordance with the administered therapy. All animals were treated with three applications by intra-articular injection, every 15 days, with the beginning of the treatment was given on day 14 after induction of OA. After 6 weeks of induction of OA, the animals were euthanized. All knee joint (KJ) were fixed in 10% buffered formalin for 24 hours and decalcified in EDTA solution monosodium 15% for two weeks. They were then processed according to routine procedures and the slides stained with hematoxylin and eosin (H&E) and Safranin O fast green to evaluate the concentration of proteoglycans. These were assessed by 2 independent observers in a blind study, using the criteria established by Mankin et al. (1971). By which a score of each joint was obtained by calculating the formula, standardized by the evaluation system of Osteoarthritis Research Society International (OARSI), and established by Bao et al. (2009) and Rutgers et al. (2010), thus, each KJ received a score ranging from 0 to 24. Data were analyzed for normal distribution using the Kolmogorov-Smirnov test. Therefore, normal data were submitted to analysis of variance, and, in cases of significance, means were compared using the Tukey test. For all statistical analysis was adopted the 5% significance level.
Results: Histological analyzes showed a clear distinction of articular cartilage damage among the different groups. Focal discontinuity of cartilage surface area and erosion with loss of surface lesions were found more often in groups A (360 μg of AUNP-PAH) and B (20 μg of curcumin), and loss of proteoglycans, as evidenced by decreased safranin O staining fast green. KJ in group C (360μg of AUNP-PAH-Curcumin), there was edema and fibrillation of the cartilage surface were the most frequent changes, emphasizing greater dial proteoglycans. While in the D (sham) group, there were injuries such as microfractures with presence of fibrocartilage, remodeling and bone repair. With regard to the mean values score, there was a greater value in group D KJ, with a mean score of 18.25. In addition, there was significant difference (p 0.05) between these groups. C group animals showed a significant decrease ($p < 0.001$) in their scoring average values in the control group, however there was no statistical difference with the other groups.
Conclusions: The results show the importance of the study and development of new nanodrugs. Despite the solutions studied have shown similarity to each other, one should consider that animals treated with the solution of AUNP-PAH-Curcumin, presented less severe in the histological lesions. Further studies evaluating the expression of antiinflammatory genes and pro-inflammatory, catabolic and anabolic mediators are needed to demonstrate the effective role of this therapeutic option in the treatment of OA.

661
THE EFFECTS OF SIMVASTATIN ON THE SYMPTOMS OF KNEE OSTEOARTHRITIS(KOA) DURING A 3-MONTH TREATMENT COURSE IN A SAMPLE OF IRAQI PATIENTS

S. Salman, A.A. Mohammad. *Coll. of Med., Baghdad, Iraq*

Purpose: Osteoarthritis is the most common form of arthropathy. Matrix metalloproteinases (MMPs) and proinflammatory cytokines such as interleukin-1 (IL-1), IL-6, and tumor necrosis factor alpha (TNF-a) play an important role in this condition. Statins show non lipid modefiable effects, pleiotropic effects, which could be responsible for their anti oxidative and anti inflammatory effect.
Methods: One hundred thirty (130) patients were randomly assigned to receive oral simvastatin 20 mg once daily in (group A =n 62), or placebo (group B =n 68). The efficacy outcome measure was the change in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) including the pain, stiffness and physical function subscales.
Results: The mean pain score at first visit (baseline) was (8.6±2.2) in group A, vs. (6.98±2.2) in group B, $P<0.001$. At the second visit after one month the pain scores in both groups were lowered down. Two month later the pain score in group A decreased more while in group B was slightly increased. After three month Pain score in group A continued to decrease (5.14±2.9), while in group B there was a smaller change than baseline with a mean difference of only (0.6 ± 0.57). The comparison in mean differences of the baseline score vs. the last visit (after three month) showed a significantly higher change of pain score in group A than in group B. The same trends had been observed in scales of stiffness, physical function and total WOMAC, and the mean changes in WOMAC scales in group A than group B.
Conclusions: The findings of this study indicate that simvastatin at the oral once-daily dosage of 20 mg is more effective than placebo in treating knee OA symptoms.

662
DO PHYSICIANS TREAT OSTEOARTHRITIS PROPERLY IN CHINA: ANALYSIS OF 67382 OUT-PATIENTS FROM PEKING UNIVERSITY PEOPLE'S HOSPITAL

H. Zhang, L. Jiang, Z. Li, X. Dong, Q. Zhong, J. Lin. *Peking Univ. People's Hosp., Beijing, China*

Purpose: There is a high prevalence of osteoarthritis(OA) in old population, and physicans usually treat OA based on the guideline recommended by OARSI. Until now, there is no report about the treatment in