Reviewer's report

Title: Dickkopf-1 (Dkk-1) in plasma and synovial fluid is inversely correlated with radiographic severity of knee osteoarthritis patients

Version: 1 Date: 1 October 2010

Reviewer: Feng-Sheng Wang

Reviewer's report:

Authors explore the serum and synovial fluid Dkk-1 concentrations in osteoarthritic patients. They detect the Dkk-1 levels by ELISA and evaluate the correlation between Dkk-1 concentration and radiographic findings of osteoarthritic joint. The team demonstrates that Dkk-1 is a potent bio-marker for knee osteoarthritis progression.

Wnt and Dkk-1 are emerging bio-active molecules participating in cartilage integrity and chondrocyte fate. In clinical vignettes, the pathomechanisms underlying osteoarthritis are complex. Dkk-1 reportedly regulates inflammation-mediated joint remodeling and accelerating osteoarthritic cartilage deterioration. In this article, linking secreted Dkk-1 levels to knee osteoarthritis severity is rational. However, the data interpretation and biological significance of Dkk-1 in various type of osteoarthritis remain further characterization.

Table 1, the gender of subjects is significantly different. Authors can not exclude the possibility that menopause is an underlying etiologic cause for different plasma Dkk-1 level, because the average age of female patients is more than 65 years. The data is needed to statistically re-analyze by age and gender correction.

Figure 1, authors compare plasma Dkk-1 and synovial fluid Dkk-1 in osteoarthritic patients. They may need to discuss the aim of this comparison. The reviewer concedes that various tissue source may have different Dkk-1 levels. Without providing synovial fluid Dkk-1 levels in normal subject, the role of synovial fluid Dkk-1 in diagnosis of osteoarthritis severity seems dispensable. Again in the discussion, many sentences describing “a significant decrease in the systemic and local expression of Dkk-1 in osteoarthritic patients” is not justified, because they do not provide synovial fluid Dkk-1 levels in normal subjects.

While plasma Dkk-1 concentration correlated with osteoarthritis progression, whether the Dkk-1 in peripheral blood can reflect the local change in osteoarthritic joint microenvironment remains additional evidence to support their conclusion.

Authors emphasize that “Dkk-1 may be a useful prognostic parameter to reflect the disease severity of primary knee OA”. It will be nice to provide additional
evidence of the cut-off values and sensitivity of Dkk-1 vs. various types of osteoarthritis to support this conclusion. Besides, it will be more comprehensive to describe how to use this secreted Dkk-1 for prognosis of primary knee OA.

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.