Executive Summary

Research Background

Glucosamine is being used as functional health food and medical drug, and total of 35 products (glucosamine sulfate) have been approved as medical drugs in Korea (Korea Food & Drug Administration, 2010). According to the data from Health Insurance Review & Assessment Service (2009), the value of quantities of glucosamine sulfate produced annually is 14.2 Billion Korean Won and the health insurance EDI (Electronic Data Interchange) claim value is approximately 8 Billion Korean Won, However, in the case of overseas countries, only Italy and England approved glucosamine sulfate as ethical drug while Germany, Korea, Taiwan and Thailand, etc approved it as over the counter. Only Korea, Taiwan and Thailand recognize it for health insurance payment. Moreover, while Korea is making payment for glucosamine sulfate based on the approvals of Korea Food & Drug Administration without separate standard in Korea, Taiwan makes payment in accordance with strict standard and Thailand is recently attempting to exclude it from insurance payment.

The National Evidence-based Health Care Collaborating Agency has announced that there is no basis for the clinical effect on 'the effect of glucosamine and chondroitin on osteoarthritis in December 2009 through systematic review and meta-analysis, and the study by Wandel et al (2010) also announced that there is no effect of glucosamine that could be acknowledged from the clinical perspective. In spite of these findings, glucosamine continues to be recognized not only as functional health food but also as medical drug, and social disputes on glucosamine including the adequacy of health insurance

payment and consumer confusion continue since payment by the health insurance is acknowledged if it is being administered 3 times per day for more than 6 weeks with single dosage of 500mg for patients with ‘mild to severe osteoarthritis’.

Accordingly, the National Evidence-based Health Care Collaborating Agency re-evaluated the current basis on the clinical effect of glucosamine with follow-up research on the existing report, 'the effect of glucosamine and chondroitin in osteoarthritis (National Evidence-based Health Care Collaborating Agency, 2009).

Research Method

This Study was carried out in prompt systematic review method through RAPID, which is a prompt-based evaluation program of the National Evidence-based Health Care Collaborating Agency, and review of literatures published after the publication of reports by this Agency in 2009 and the existing reports. The existing reports and literature search database, research strategy, standard for exclusion from selection and format of data extraction followed those of the existing reports, and search was completed over the period of August 22~23, 2011 by using Ovidmedline, Embase, Cochrane library(including Cochrane systematic reviews database, DARE, NHS EED, HTA database), CRD database, Pubmed, CCTR and Koreamed for review of existing literatures. Random clinical trial research that reported the clinical effectiveness of glucosamine in osteoarthritis and systematic review were used as the selection standard. The process of literature selection, extraction of data and assessment of quality was discussed and agreed upon after having been carried out independently by 2 researchers.

Research Results

Although there were 2 cases of random clinical trial researches (Chopra et al, 2011; Sawitzke 2011) that were added after the existing report, only 1 case (Sawitzke et al, 2011) was added it was not possible to extract the standard deviation at the time of completion of follow-up since 1 case of research (Chopra et al, 2011) presented the resultant values in graph in the meta-analysis that integrated with the existing report. Descriptions of the clinical effect of glucosamine through this Study for each of the medical results are as follows.

Pain reduction effect

- Clinical effect of glucosamine (glucosamine hydrochloride + glucosamine sulfate)

The results of subgroup analysis in accordance with the source of the research grand illustrated that although the integrated estimated value of the glucosamine pain reduction effect was SMD -0.44(95% CI -0.73, -0.16), which was more effective than the placebo, and was different with I^2 = 78% in the researches carried out with industrial funding (10 cases), the results of the researches with funding from non-profit organizations (6 cases) displayed no difference in effectiveness from that of placebo with SMD -0.01(95% CI -0.11, 0.09) and I^2 = 0%.