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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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Glucosamine in osteoarthritis: Update of the evidence

The rationale for the use of glucosamine in osteoarthritis (OA) is that it is a precursor for glycosaminoglycans and glycoproteins, which are a major constituent of joint cartilage and synovial fluid. In Australia, glucosamine is available in either sulfate or hydrochloride formulations and is classified in the category of 'herbal and complementary medicines'. Supply of glucosamine products in Australia is not subsidised through the general pharmaceutical benefits scheme (PBS); authority approval may be obtained for DVA entitled patients. The monthly cost of treatment varies widely from around \$A10-\$A40 depending on the brand of glucosamine and the dose used.

In an earlier E-bulletin (*Glucosamine for osteoarthritis*, 5(1) February 2002), available evidence at the time provided support for the use of glucosamine in treating pain and immobility associated with OA and suggested a potential role in disease-modification. Since this time, further studies and meta-analyses have failed to fully consolidate this position.

In February 2008, a NICE Clinical Guidance was published on the topic of osteoarthritis management in adults and included recommendations on the role of glucosamine. The authors noted difficulties in comparing the evidence from trials due to differences between the products employed by the study populations, variable patient characteristics, and the use of analgesia at the time of pain and function assessment in the trials. Overall, the trials that used glucosamine sulfate (rather than hydrochloride) as a single dose of 1500 mg (rather than divided doses) showed a small benefit over placebo for treatment of knee OA. Evidence to support the efficacy of glucosamine hydrochloride suggests that this formulation may not be as effective in relieving pain as glucosamine sulfate. The NICE Guidance concludes that "the use of glucosamine products is not recommended for the treatment of osteoarthritis" and prescribers on the UK's NHS are discouraged from prescribing any glucosamine preparations for patients with OA.

In the absence of strong evidence in support of glucosamine, a judicious approach is warranted. The efficacy argument needs to be balanced with financial cost and adverse effects. In general, glucosamine preparations are well tolerated with gastrointestinal upset being the most commonly reported adverse effect. Caution and increased monitoring are advised in the setting of concurrent warfarin administration (due to reports of INR fluctuations) and patients with diabetes (due to possible effects on glucose metabolism). While the effectiveness remains unclear, it appears glucosamine is a relatively safe treatment option for people with OA to trial.

In summary, the results from studies of glucosamine are controversial. Based on the evidence to hand, a suggested approach for those patients wishing to try (or continue taking) glucosamine would be to use the sulfate salt, take a single daily dose of 1500mg, to use it for OA of the knee and to perform a trial of therapy, reviewing the effects of glucosamine after 2-3 months compared with their pain before commencement.

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FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: chris.alderman@rgh.sa.gov.au
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