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into account, it is possible for hand disorders to develop before a clinical diagnosis of diabetes is made. And hand pain may offer some clinical clue to the diagnosis of diabetes.

Q Qiao, S Keinänen-Kiukaanniemi, U Rajala, A Uusimäki, S-L Kivelä

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Clinical Outcome after One Year Following Samarium-153 Particulate Hydroxyapatite Radiation Synovectomy

Sir,

I was interested to read the paper, on the clinical effect of samarium-153 particulate hydroxyapatite (Sm-153 PHYP) in patients treated for persistent rheumatoid arthritis knee synovitis (1). Comparing with yttrium-90 (Y-90) colloids, the most commonly used radiopharmaceutical for radiation synovectomy, Sm-153 has a shorter half-life, respectively 2.7 and 1.9 days, a shorter maximum penetration in the soft tissue respectively 10.8 and 3.1 mm and it has in contrast with Y-90 a γ decay. The leakage of Sm-153 using whole-body scintigraphy ranged from, 0 to 3% and was detected in lung, liver and regional lymph nodes. In our study using Y-90 for chronic knee synovitis, there was found a leakage of radioactivity 48 hours after injection due to bremsstrahlung measured in the inguinal nodes, the liver and the heart varied from 0.2 to 1.2% of the count rate measured above the knee joint (2). This was done with a collimated-thallium activated sodium iodide crystal (2 x 2 inch) in the energy range of 100 to 200 KeV (3).

The clinical outcome with Y-90 silicate (5 mCi) for

chronic synovitis of the knee joint in patients with rheumatoid arthritis (RA) without combining glucocorticosteroid injection was after 1 year of treatment 60% (4). In the Sm-153 PHYP treatment, combining with a glucocorticosteroid injection was the good response 44% after 1 year.

In that study (4), we found that the clinical response after 1 year showed no correlation with the initial inflammatory activity as measured by ^{99m}Tc-pertechnetate uptake measurements (5), measured just before treatment. On the other hand, taking the ESR as a measure of general disease activity, a significant correlation was found between the favourable outcome and a low ESR (measured just before treatment). These findings are in agreement with the observations and conclusion in the Sm-153 PHYP study (1), that patient selection for radiation synovectomy treatment of persistent synovitis should favour with drugcontrolled or inactive synovitis of most other joints.

Do the authors think, that Sm-153 PHYP is a more suitable radiopharmaceutical than Y-90-colloids for treatment of chronic persistent knee synovitis?

In the guidelines for the individual radiopharmaceuticals in the different joints is recommended by the European Association of Nuclear Medicine

A.M.Th. Boerbooms, University Hospital Nijmegen. Department of Rheumatology. P.O. Box 9101, NL-6500 HB Nijmegen, The Netherlands.

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(EANM) (6) that rhenium-186, with a maximum penetration in the soft tissue of 3.6 mm should be used for the treatment of the persistent chronic synovitis of the elbow, wrist and the ankle joint. Sm-153 has a maximum penetration in the soft tissue of 3.1 mm and Y-90; 10.8 mm. Should Sm-153 also especially be used in elbow, wrist and ankle joints and Y-90 in the knee joints?

A. M.Th. Boerbooms

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REPLY

Sir,

There are a number of theoretical reasons why samarium-153 particulate hydroxyapatite (Sm-153

Gavin Clunie, Metabolic Unit, Royal National Orthopaedic Hospital, Brockley Hill, Stanmore, Middlesex HA7 4LP, UK.

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PHYP) may be no less efficacious than yttrium-90 (Y-90) colloids for treating chronic synovitis of the knee (1). Comparative efficacy can only be compared through large randomised controlled studies.

As alluded to (1, 2), the rationale underlying recommendations for joint-specific application of radiopharmaceuticals may be flawed for a number of reasons: the biological (cellular) target within chronically-inflamed synovium has not been defined and thus its distribution within the tissue cannot be predicted; consistent differences between synovial dimensions in different appendicular joints have not been described; the relative effect of intra-articular distribution of various radiopharmaceuticals within a joint cavity and uptake into synovial tissue in the context of radionuclide half-life, dose rate and therapeutic β^- penetration and also radiopharmaceutical biological half-life, has never been elucidated.

We agree that Sm-153 PHYP may prove to be useful in therapy of elbow, wrist and ankle joints; however, like any other new local treatment for synovitis, it should be compared in large randomised, double-blind controlled studies with the most acceptable, available alternative e.g. long-acting intra-articular glucocorticoids. Published comment reveals that there are few studies which examine Y-90 in this way (3).

Yours

G Clunie, D Lui, I Cullum, P Ell, J Edwards

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