

THERAPY

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SAMARIUM-153-MULTIBONE TREATMENT OF METASTATIC BONE PAIN

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Background: Pain caused by bone metastases often significantly affects quality of life of the patients with cancer. In Hungary the isotopic treatment of this type of pain is reimbursed by the national security system for 3 years.

Aim: To follow-up of our patients treated with Sm-153-Multibone and to determine of therapy efficacy and the extent bone marrow damage.

Material and methods: Between 2002–2004 we performed 90 treatments in 74 patients. In most cases primary cancer causing metastasis was breast cancer among women (26 patients) and prostatic cancer (24 patients) in men. 43 patients were already on narcotic drugs, the others received multiple types and doses of analgesics. The bone scintigraphy score before treatment was mean 69 (30–110). The patients received 2500 MBq Sm-153-Multibone intravenously. 10 patients asked for treatment repetition.

Results: The decrease of subjective complaints and reduction in analgesic consumption was the marker of treatment efficacy. The therapy was successful in 48 patients (significant pain reduction in 33, moderate pain reduction in 15 patients). Successful treatment was achieved mostly in breast and prostatic cancer, while failure was seen mainly in metastases caused by other tumors (colo-rectal, thyroid carcinoma). In one part of our cases the repeated bone scintigraphy showed significant regression. After the treatment 30% of patients had the significant lowering of the white cell and thrombocyte counts. It could be noticed in the 2nd weeks after the treatment and reached critical values in the 4th week. The red blood cell counts and serum creatinine levels did not change.

Conclusion: Based on our results, Samarium-153-Multibone treatment is effective for bone pain palliative therapy, but the reduction of white blood cells requires close follow up of the patients.

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2.5-YEARS RESULTS WITH ¹⁶⁶HOLMIUM-PHYTATE TREATMENT OF CHRONIC SYNOVITIS. PHASE I-IIA, RANDOMIZED, INCREASING DOSAGE, SINGLE-BLIND, PLACEBO-CONTROLLED COMPARATIVE STUDYM. Szentesi¹, S. Takacs¹, Z. Farbaký¹, E. Nagy¹, J. Környei², M. Antalffy², J. Törkő², G. Tóth², G. Jánoki³, L. Balogh³, P. Géher¹¹Semmelweis University, Chair of Rheumatology and Physiotherapy, Department of Rheumatology, Polyclinic of the Hospitaler Brothers of St. John of God²Institute of Isotopes Co. Ltd.³National FJC Research Institute for Radiobiology and Radiohygiene Budapest, Hungary

Study objectives: Examination of anti-inflammatory effect of 166-Holmium-phytate injection /166-Ho/.

Material and methods: Phases I-II, randomized, simple-blind, placebo-controlled comparative study using increasing dosage. 31 patients suffering from chronic synovitis, rheumatoid arthritis and seronegative spondylarthritis were examined. The protocol commenced with screening. The patients were selected according to inclusion and exclusion criteria. Patients were randomly distributed into four treatment arms: Group I. Holmium phytate injectable suspension marked by 185 MBq ¹⁶⁶Ho + 40 mg of 1 ml triamcinolone acetate/TA/ + 1 ml of 1% lidocaine injection /Lid.inj./ Group II. 555 MBq ¹⁶⁶Ho. + 40 mg of 1 ml TA + 1 ml Lid.inj. Group III. 925 MBq ¹⁶⁶Ho + 40 mg 1 ml TA + 1 ml of 1% Lid.inj. Group IV. Solely 40 mg of 1 ml TA + 1 ml of 1% Lid.inj. There were 30 month follow-up period after the administration of the isotope. Inflammatory activity of the affected knee-joint was tested prior to treatment, and the 14th and 28th days, and 3, 6, 9, 12, 24 and 30 months after treatment. Testing was done based on the following parameters: Measurement of swelling of knee-joint [cm]; Flexion – heel buttocks distance [cm]; Degree of knee-joint pain. Visual Analogue Scale /VAS-1-100/; Patient's opinion on inflammation of knee-joint /VAS-1-100/; Doctor's opinion on given inflammation of knee-joint /VAS-1-100/.

Results: Even after 3 year period 88.2% of the findings were rated as excellent or good. 86.66% of the patients do not need another puncture even after a 3 years period. During the study period, inflammation decreased in the group receiving 555 and 925 MBq.

Conclusion: Ho-166 isotope is an effective radiopharmacy treating synovitis. Effective dosage is 555-925 MBq.

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INTRACORONARY RADIONUCLIDE THERAPY WITH LIQUIDE RE-188 TO PREVENT RESTENOSIS

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Aim: To evaluate possible relationship between clinical success of intracoronary radionuclide therapy with liquide Re-188 to prevent restenosis (RS) after percutaneous coronary intervention (PCI) and severity of coronary artery disease (length of stenosis, number of diseased vessels and restenosis after previous PCI).

Material and methods: 19 patients (11 male, 8 female, median age: 64.1 years) were enrolled in the study according to the protocol of an IAEA co-ordinated project. 13 patients had significant coronary stenosis with less than 2 cm of length, 6 patients had stenosis longer than 2 cm, 8 patients had single vessel, 5 patients had two-vessel and 6 patients had three-vessel disease. 5 patient had RT after one, 10 after two and 4 after three previous PCIs. 18–20 mL of Re-188 eluate from a W-188 generator were concentrated to 1–2 mL. Re-188 solution was put — by a special tool with appropriate radiation protection — into a balloon-catheter placed in the dilated vessel. Duration of the irradiation was calculated by an Excel table — based on certain data of the coronary anatomy and radioactive concentration — to deliver 18 Gy to the vessel. Success of the therapy was evaluated after 6 month of follow-up.

Results: 6 patient had RS. RS rate was not related to the length of stenosis. RS occurred in patient with two- or three-vessel disease and after 2 or 3 previous restenosis only.

Conclusions: intracoronary radionuclide therapy is not effective in patients with two- or three-vessel disease and repeated restenosis after previous PCI. Supported by IAEA (CRP-IVRNT).

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THERAPY — RADIOSYNOVIORRHESIS

¹⁶⁶HOLMIUM-PHYTATE-RADIOSYNOVIORRHESIS IN RHEUMATOID ARTHRITIS. ONE YEAR RESULTS. PHASE III PROSPECTIV STUDYM. Szentesi¹, S. Takacs¹, Z. Farbaký¹, E. Nagy¹, J. Környei², M. Antalffy², J. Törkő², G. Jánoki³, L. Balogh³, P. Géher¹¹Semmelweis University, Chair of Rheumatology and Physiotherapy, Department of Rheumatology, Polyclinic of the Hospitaler Brothers of St. John of God²Institute of Isotopes Co. Ltd.³National FJC Research Institute for Radiobiology and Radiohygiene Budapest, Hungary

Study objectives: Examination of anti-inflammatory effect of 166-Holmium-phytate injection.

Material and methods: Phases III, prospectiv study. 32 patients suffering from chronic synovitis, rheumatoid arthritis were examined. The protocol commenced with screening. The patients were selected according to inclusion and exclusion criteria. Holmium phytate injectable suspension marked by 600 MBq ¹⁶⁶Holmium phytate injectable suspension, and 40 mg of 1 ml triamcinolone acetate and 1 ml of lidocaine 1% There were 12 month follow-up period after the administration of the isotope. Inflammatory activity of the affected knee-joint was tested prior to treatment, and the 3rd and 3, 6, 9 and 12 months after treatment. Evaluation was based on the criteria as described by Müller, Rau and Scütte the score system was developed by the authors.

Results: During the study period, inflammation decreased. In the first one year excellent and good results were recorded in 93.3%. One year after radiosynoviorthesis 93.3% of patients did not need another puncture. Administration of Holmium-166 phytate is a safe procedure. We did not detect any symptoms of radiation sickness. We found no deviations in either haematological or chemical parameters during the study period.

Conclusion: Holmium-166 isotope is an effective radiopharmacy treating synovitis. Due its advantageous features it produces less radioactive damage on the organism than the traditionally used isotopes (90-Yttrium, 169-Erbium, 186-Rhenium). Due to its physical parameters it is optimal to treat large joints (knee) and medium size joints (hips, shoulder, elbow, wrist, ankle). Effective dosage is 555–925 MBq.