

RADIOACTIVE (YTTRIUM⁹⁰) SYNOVECTOMY

PURPOSE

This guideline is designed to assist medical and nursing staff in the management of children having radioactive Yttrium⁹⁰ (⁹⁰Y) synovectomy for haemophilic arthropathy at the Royal Children's Hospital

DEFINITIONS

1. Radioactive synovectomy means intra-articular injection of ⁹⁰Y for the purpose of management of haemophilic synovitis
2. ⁹⁰Y is a beta particle emitter. The physical half life is 2.7 days

BACKGROUND

Patients with haemophilia may experience regular bleeding episodes into joint spaces. The bleeding arises from trauma to the lax subsynovial venous plexus. Repeated bleeding episodes lead to synovial hypertrophy, inflammatory response and the development of haemophilic arthropathy.

Synovectomy (either medical or surgical) can reduce the incidence of bleeding and prevent the establishment of arthropathy.

Radioactive synovectomy utilises the property of radioactive colloid to cause local injury to the proliferative synovium.

PROCEDURE

Successful radioactive synovectomy involves co-ordination of a number of subspecialties including haematology, nursing, nuclear medicine, radiology, anaesthetics, physiotherapy and prosthetics. The following procedure is an outline for the co-ordination between these departments.

1. Once a potential patient has been identified, initial contact will be made to arrange a provisional date with the nuclear medicine department. At least four weeks notice is required. Only Monday afternoons are available for Yttrium injections.
2. Once a provisional date has been selected, the admissions department will be contacted to book a date. An admission form will be completed and forward to the admissions department.
3. A formal referral to the Director of Medical Imaging will be written by the Director of the Haemophilia Treatment Centre. The referral will include information on the following
 - a. Age of patient
 - b. Height and weight of patient
 - c. Joint involved
 - d. Past history of local therapy to joint
 - e. History of allergies / concomitant medication

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- f. Results of imaging of joint
- g. Provisional date of procedure

Appropriate imaging / anaesthetic requirements will depend on the individual patient's requirements.

Consent

Informed consent for the procedure will be obtained by the Director, Haemophilia Treatment Centre.

Clotting factor concentrate

Clotting factor concentrate will be provided for the procedure according to the following protocol

	Factor VIII	Factor IX
Pre-operative	50 units / kg	75 units / kg
Immediately post-operative (on arrival to ward)	25 units / kg	50 units / kg
Day 1 post – operative	25 units / kg	50 units / kg

Further doses of clotting factor concentrate may be required depending on bleeding complications.

Joint immobilisation

All joints will require immediate post operative immobilisation. This will require pre-operative arrangement of splint (via physiotherapy) which will accompany the patient to the Yttrium injection.

Pain control

An initial increase in synovitis may develop post – operatively and be associated with an increase in joint pain. All patients will be admitted post – operatively for analgesia and to ensure joint immobilisation. Analgesic requirements will vary from patient to patient but short courses of parenteral narcotics (including patient controlled analgesia) may be required. The increase in pain may be experienced for up to 3 weeks post synovectomy.

Post – operative imaging

A nuclear scan to determine body distribution of the Yttrium will be arranged on the second day post-operatively. The scan will be arranged by the nuclear medicine scientist (ext 55259).

Information for nursing staff

The Department of Medical Imaging provide an information sheet for nursing staff titled 'Information for nursing staff managing children who have had Yttrium synovectomy'.

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Follow – up

Regular physiotherapy review will be required for rehabilitation of the joint post Yttrium injection. An outpatient appointment in the haemophilia clinic will be arranged four weeks post joint injection to monitor for response.

ATTACHMENTS

REFERENCES

- EANM procedure guidelines for radiosynovectomy
- General principles for General principles and indications of synoviorthesis (medical synovectomy) in haemophilia , E.C. Rodriguez-Merchan, J.D. Wiedel Haemophilia 2001 S2 pages 6-10

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