Intraarterial Irradiation for Inoperable Liver Cancer

Information for patient

Introduction

- Intra-arterial irradiation has been developed in the treatment of inoperable liver tumours. This is to eradicate tumour cells by radiation.
- Radiologist with special training in Interventional Radiology will perform this treatment in the Department of Radiology under image guidance.
- The procedure involves the selective cannulation of the specific artery supplying the liver tumours and the subsequent delivery of radioactive particles (Yttrium-90).
- Yttrium 90 particles emit high-energy electron, which kills the tumour cells in the vicinity.
- About 5% of the patients receiving this treatment have their inoperable status converted to resectable cases.

Procedure

- Pretreatment assessment imaging such as computed tomography (CT) and angiography will be used to assess the operability of the liver tumours and the feasibility of the treatment.
- In the pre-treatment angiogram, a radioactive test agent, Technetium-99m-macroaggregated albumin (Tc-MAA), will be administered to the supplying artery. This is to ascertain no excessive radiation be delivered to the lungs as there may be developmental connections between the blood vessels in liver and lung.
- The relative uptake of the Tc-MAA by the tumour to that by the surrounding normal liver tissue will be estimated so as to assess the feasibility of the treatment.
- The patient will be admitted to the hospital before the treatment.
- Bleeding tendency and liver function of the patient will be checked and correct accordingly.
- The treatment procedure usually lasts from 1 to 2 hours.
- The treatment starts with puncturing the femoral artery at the groin region. A small catheter will be used to select the supplying artery to the liver tumours. Suitable dose of radioactive particle will be delivered.
- The patient will be kept isolated in the hospital for 7 days before discharged for radiation protection purpose.
- Alpha-fetoprotein (a tumour marker in the blood) will be checked to monitor the treatment response.

Potential Complications

- Radiation damage to bone marrow, liver or lung is rare.
- Abdominal distension or pain during the administration of the Yttrium 90 particles in some cases

- Hair loss, persistent nausea and vomiting (un-common)
- Allergy to the microspheres (rare).
- Major bleeding from puncture wound, infection and embolism (less than 1%).
- Procedure related mortality (very rare)
- The overall adverse reactions related to iodine-base non-ionic contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250000.

Disclaimer

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