Scottish Clinical Imaging network

NHS National Services Scotland

INDICATIONS FOR THE USE OF ^{68}Gallium DOTA PET CT (^{68}Ga DOTA) IN NEUROENDOCRINE TUMOURS

Background

Somatostatin Receptor Scintigraphy (SRS) is a well-established imaging tool in the diagnosis and management of Neuroendocrine tumours (NETs). In Scotland, to date, the main radiopharmaceuticals used for this indication are ^{111}Indium Octreotide and more recently ^{99m}Tc-Tektrotyd. The development of PET radiopharmaceuticals offers the benefit of improved resolution capabilities of PET together with the greater receptor affinity of the peptide component resulting in the potential for more accurate staging and disease delineation.

The Scottish Government has approved funding to develop ^{68}Ga DOTA services at all four Scottish PET CT centres. Although it may be preferential to replace SRS with ^{68}Ga DOTA the availability of tracer is likely to remain limited while these services are established. As a result, it is expected that SRS will have a continued role in the management of patients with ^{68}Ga DOTA being considered where it is felt to add additional benefit. Therefore, all referrals should come via (or in discussion with) the regional NET MDTs.

^{68}Ga DOTA, as with all PET referrals, should only be considered where the outcome of the investigation will directly influence individual patient management and treatment.

Routine Indications

- **Gastroduodenal Neuroendocrine Neoplasms (GNENS):**
  - Type 3- GNEN- when staging CT/laparoscopy inconclusive in patients being potentially considered for radical surgery.

- **Jejunal/Ileal NENS**
  - Staging of patients with small bowel NET being considered for surgery
  - Post op staging in patients presenting with small bowel obstruction secondary to small bowel NET
  - Staging of patients with metastatic disease considered for treatment with curative intent e.g. Hepatic metastases.
  - Suspected tumour (clinical/elevated urinary 5-HIAA/serum CgA) with negative conventional imaging.
  - Suspected biochemical recurrence or progressive disease with negative/stable conventional imaging

- **Pancreatic NENS**
  - Localisation of functional (non Insulinoma) NENS not identified on CT/MRI/EUS.
  - Staging of Gastrinoma and other rare functional tumours (RFT).
  - Patients being considered for radical surgery (other than Insulinoma).

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- **G1/2 Colorectal NEN**
    - When CT/MRI demonstrates possible/definite metastatic disease which would be suitable for treatment with curative intent.

- **Appendiceal NEN**
    - G1/2 disease with suspected/ definite metastatic disease on CT/MRI in patients with tumours >2cm and or with deep mesoappendiceal infiltration or angioinvasion.

- Metastatic NET of unknown primary being considered for treatment with curative intent

- Patients being considered for PRRT

- Staging of bronchial carcinoids in patients being considered for radical surgery

- Medullary thyroid cancer with increasing calcitonin and negative/equivocal conventional imaging

- Clinically or biochemically suspected paraganglioma/phaeochromocytoma with negative or equivocal imaging including MIBG

Non-routine

- Somatostatin receptor status should, in the first instance, be assessed using SRS with ^{68}GA DOTA only be considered in exceptional cases (unless in conjunction with the indications above).

Future Considerations

It is the aim that as services become more established ^{68}Ga DOTA will become the routine investigation of choice for NETs. However, the availability of tracer may remain limited and ongoing assessment of resource availability and clinical need will be required to guide service development. There is currently insufficient evidence to support the use of ^{68}Ga DOTA in the follow up of patients treated with PRRT at present but will be subject to further review in future. The ongoing development of other ^{68}Ga labelled tracers as well as ^{18}F fluorinated versions will also be kept under review.

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NOTE

This guideline is not intended to be construed or to serve as a standard of care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national guideline or any local guidelines derived from it should be fully documented in the patient's case notes at the time the relevant decision is taken.