Scottish Clinical Imaging network

NHS National Services Scotland

CLINICAL INDICATIONS FOR THE USE OF ^{18}F-FDG PET/CT IMAGING IN VASCULITIS

BACKGROUND

Original guidance on the use of FDG PET CT in the clinical context of vasculitis was produced in 2016 in order to standardise the approach across the Scottish PET centres. The resulting recommendation was to adopt the indications as per the RCP/RCR document "Evidence based indications for the use of PET-CT in the UK" published in 2016, with some minor amendments. This update is part of a wider scheduled revision of current guidelines.

It is apparent that FDG PET CT in conjunction with conventional US, MRI and CT/CTA has a role in the assessment and diagnosis of large vessel vasculitis with the most appropriate imaging modality dependent on clinical factors. There is no current role for FDG PET CT imaging in the routine response monitoring.

It is also accepted that glucocorticoid treatment can suppress FDG uptake in the vessel walls, and may increase background liver uptake, which will reduce accuracy of the investigation and lead to potential false negatives. It is therefore recommended that where possible imaging be performed prior to or within 72 hours of commencement of glucocorticoid treatment.

As with all cases, PET referrals should only be considered where the outcome of the investigation will directly influence individual patient management and treatment.

Non Routine Indications

- In selected cases of large vessel vasculitis to determine the extent and distribution of disease activity or confirm diagnosis where conventional imaging is negative or equivocal.
- In selected cases of atypical vasculitis where paraneoplastic phenomenon is suspected and where conventional imaging is negative or equivocal.
- PET-CT would not be indicated in all patients with giant cell arteritis but is of use in patients where conventional investigations are unhelpful and treatment would be altered if ongoing inflammatory disease is confirmed.

Future Considerations

These guidelines will be reviewed on an ongoing basis in order to incorporate any significant changes to the existing evidence base.

NSD610-005.09 V3
Published June 2021
Review June 2025

References

Nielsen BD, Gormsen LC, Hansen IT, Keller KK, Therkildsen P, Hauge EM. Three days of high-dose glucocorticoid treatment attenuates large-vessel 18F-FDG uptake in large-vessel giant cell arteritis but with a limited impact on diagnostic accuracy. Eur J Nucl Med Mol Imaging. 2018 Jul;45(7):1119-1128.

Hellmich B, Agueda A, Monti S, Buttgereit F. 2018 Update of the EULAR recommendations for the management of large vessel vasculitis. Ann Rheum Dis. 2020 Jan;79(1):19-30.

Dejaco C, Ramiro S, Duftner C, Besson FL.EULAR recommendations for the use of imaging in large vessel vasculitis in clinical practice. Ann Rheum Dis. 2018 May;77(5):636-643.

Balink H, Bennink RJ, van Eck-Smit BL, Verberne HJ. The role of 18F-FDG PET/CT in large-vessel vasculitis: appropriateness of current classification criteria? Biomed Res Int. 2014;2014:687608.

Clinical Commissioning Policy Statement: Positron Emission Tomography - ComputedTomography Guidelines (all ages): NHS England B02/PS/b (2015)

Lensen KD, Comans EF, Voskuyl AE, van der Laken CJ, Brouwer E, Zwijnenburg AT, Pereira Arias-Bouda LM, Glaudemans AW, Slart RH, Smulders YM. Large-vessel vasculitis: interobserver agreement and diagnostic accuracy of 18F-FDG-PET/CT. Biomed Res Int. 2015;2015:914692.

Lee YH, Choi SJ, Ji JD, Song GG. Diagnostic accuracy of 18F-FDG PET or PET/CT for large vessel vasculitis : A meta-analysis. Z Rheumatol. 2016 Nov;75(9):924-931. English. doi: 10.1007/s00393-015-1674-2. PMID: 26704559

Castellani M, Vadrucci M, Florimonte L, Caronni M, Benti R, Bonara P. 18F-FDG uptake in main arterial branches of patients with large vessel vasculitis: visual and semiquantitative analysis. Ann Nucl Med. 2016 Jul;30(6):409-20.

Soussan M, Nicolas P, Schramm C, Katsahian S, Pop G, Fain O, Mekinian A. Management of large-vessel vasculitis with FDG-PET: a systematic literature review and meta-analysis. Medicine (Baltimore). 2015 Apr;94(14):e622.

Dellavedova L, Carletto M, Faggioli P, Sciascera A, Del Sole A, Mazzone A, Maffioli LS. The prognostic value of baseline (18)F-FDG PET/CT in steroid-naïve large-vessel vasculitis: introduction of volume-based parameters. Eur J Nucl Med Mol Imaging. 2016 Feb;43(2):340-348.

RCP London, RCPS Glasgow, RCP Edinburgh, RCR, BNMS, ARSAC. Evidence-based indications for the use of PET-CT in the UK 2016.

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.