Unproven value of end-of-treatment and serial follow-up FDG-PET in primary mediastinal B-cell lymphoma
Adams, Hugo J. A.; Kwee, Thomas C.

Published in:
Haematologica

DOI:
10.3324/haematol.2018.198523

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

Copyright
Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

Take-down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): http://www.rug.nl/research/portal. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.
Unproven value of end-of-treatment and serial follow-up FDG-PET in primary mediastinal B-cell lymphoma

A recent study by Melani et al. aimed to determine the value of end-of-treatment FDG-PET and serial follow-up FDG-PET in patients with primary mediastinal B-cell lymphoma (PMBCL) treated with dose-adjusted EPOCH-R. End-of-treatment FDG-PET was performed in 80 patients, 57 of whom received 144 serial follow-up FDG-PET scans. End-of-treatment FDG-PET scans were interpreted according to the Deauville criteria, with a score of 4 or 5 considered to indicate a positive result. After treatment, 55/80 (69%) patients had negative end-of-treatment FDG-PET results. With a median follow-up of 8.4 years (range 1.8-18.4 years), only 1 relapse (1.8%) occurred in these 55 patients, therefore yielding a negative predictive value (NPV) of 98.2% for end-of-treatment FDG-PET. On the other hand, end-of-treatment FDG-PET was positive in 25 patients. Despite the very long follow-up period, only 5/25 (20%) with positive end-of-treatment FDG-PET results appeared to suffer from treatment failure. Of the 6 patients with treatment failure (one with negative and five with positive end-of-treatment FDG-PET), 4 underwent biopsies that confirmed the presence of residual lymphoma, whilst treatment failure was determined on the basis of serial follow-up imaging in 2 patients. One patient without biopsy interpretation showed progression on CT with an end-of-treatment FDG-PET scan, whilst treatment failure was very low; the reference standard was biopsy. Thirdly, of the 5 patients with treatment failure (60%) were successfully salvaged (2 with radiotherapy, and 1 with resection), whilst 2 died despite the application of multiple salvage regimens, indicating that (early) detection of treatment failure using multiple FDG-PET scans had no value in these patients in terms of a survival benefit. Of the 2 patients successfully treated with radiotherapy, it remains unknown whether the radiotherapy was actually successful in eradicating the lymphoma as histological evidence of residual disease was lacking and disease presence was only determined by means of serial follow-up FDG-PET findings. Note that multiple studies have shown that the application of routine follow-up FDG-PET examinations has no survival benefit in patients with negative end-of-treatment FDG-PET results. Considering the very low incidence of treatment failure in PMBCL patients with positive end-of-treatment FDG-PET results, the lack of a survival benefit of routine follow-up imaging studies may also apply to this group of patients.

In conclusion, the high NPV of end-of-treatment FDG-PET in PMBCL remains unproven because the favorable prognosis of patients with negative end-of-treatment FDG-PET results may be a reflection of the generally good prognosis of patients with PMBCL rather than the value of end-of-treatment FDG-PET in ruling out residual lymphoma. Multiple studies in DLBCL have already revealed that end-of-treatment FDG-PET is unable to exclude residual lymphoma, with high proportions of patients developing disease relapse during follow up. Finally, we believe that the value of serial follow-up FDG-PET in determining residual lymphoma remains unproven: the number of patients who experienced treatment failure was very low; the reference standard was inadequate and included serial follow-up FDG-PET findings resulting in incorporation bias; and there was a lack of proof that serial follow-up FDG-PET improves patient survival.

Hugo J.A. Adams1 and Thomas C. Kwee1
1Department of Radiology and Nuclear Imaging, Deventer Hospital and 2Department of Radiology, Nuclear Medicine and Haematology, University Medical Center Utrecht, the Netherlands
References