Impact of central review of imaging in an FDG-PET response adapted Pediatric Hodgkin lymphoma protocol

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Introduction

Response adapted treatment approaches are utilized in pediatric Hodgkin lymphoma (PHL) trials. Early response on FDG-PET can identify patients that may do well with less intensive therapy or may benefit from escalation in chemotherapy or involved site radiotherapy (ISRT). Central review of imaging ensures uniform response grading and subsequent treatment adaptation. As FDG-PET and visual Deauville scoring (D5S) has been adopted in PHL we investigated the correlation of institutional and central review of interim PET scans.

Methods

AHOD 1331 is a randomized clinical trial for patients 2-21 years of age with newly diagnosed Stage IIB with bulk, III B or IV A/B classical HL(NCT02166463); accrual was complete in August 2019. Patients were randomized between two different systemic therapies and underwent response assessment after 2 cycles of chemotherapy (PET 2) in order to identify slow responding lesions (SRL) by D5S of 4,5, which would require ISRT at completion of treatment. Institutions reported a D5S of target lesions on PET2 and submitted it with the images to for central review.[1] Review consisted of two COG radiology reviewers for each case, with an additional reviewer adjudicating any discordance between the initial 2 central reviews. Levels of agreement were measured between institutional and central review, using nonweighted kappa (k) statistics. k values between 0.81 and 1.00 indicate very good agreement, 0.61 and 0.80 indicate good agreement, 0.41 and 0.60 indicate moderate agreement, and 0.21 to 0.4 indicate fair agreement.

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Results

Among 454 scans reviewed to date, PET2 agreement between central and institutional review was good with a k of 0.72 (95% CI 0.64-0.80). Overall, 16% (14/87) of all cases with SRL and 7% (27/367) rapid responding lesions (RRL) would have been misclassified as RRL or SRL respectively. Overall, 3.1% (14/454) would have been under treated and 6% (27/454) would have been incorrectly assigned to ISRT in the

absence of central review.

Conclusion

Central review of imaging remains essential for response adapted treatment protocols, by providing consistent response determination, and in 9% of cases in AHOD 1331, resulted in change in therapy. Further analysis is needed to identify factors associated with discordant institutional reporting of response assessment.