Whole-body FDG-PET imaging for staging of Hodgkin's disease and lymphoma


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Whole-body PET with 2-(F) fluoro-2-deoxy-D-glucose (FDG) for staging of Hodgkin's disease and non-Hodgkin's lymphoma (NHL).

Type of intervention
Diagnosis.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with a diagnosis of HD or NHL who needed staging or restaging work-up.

Setting
Hospital. The economic study was carried out in the USA.

Dates to which data relate
No dates were reported.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
No power calculations were reported. 18 patients were included in the study, 40% being men, and the age range being 17 to 70 years (mean 46). Eleven patients had a diagnosis of NHL, and 7 a diagnosis of HD.

Study design
This was a retrospective cohort study. The staging tests were performed in more than one centre (number not reported). The duration of follow-up was 5 months. No loss to follow-up was reported.

Analysis of effectiveness
The analysis was based on intention to treat. The primary outcome used in the analysis was staging accuracy by noting the false negative and false positive disease sites detected by both strategies. The diagnostic confirmation was based mainly on biopsy results, concordance of diagnoses between strategies and clinical follow-up assessments at 5 months. Images obtained with the intervention were scored positive, negative or indeterminate for abnormal FDG activity on a patient and anatomical site basis.

Effectiveness results
Both strategies correctly identified the same abnormal lesion sites in 31 of 37 lesion cases. The intervention detected three additional lesion sites missed by the comparator. The comparator, in turn, detected three additional lesion sites missed by the intervention. On a per patient basis, the intervention and the comparator showed equal staging of seven HD patients. Under the intervention, the stage increased for three patients and decreased in another, these patients having previously been diagnosed with NHL by the comparator.

Clinical conclusions
A more practical application of whole-body PET may be to confirm relapse, especially when the site of recurrence is unsuspected, or to identify a more accessible tumour site for histological confirmation.

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic analysis, and only separate clinical outcomes were reported.

Direct costs
Costs were not discounted due to the short time frame of the study. Resource quantities were reported separately from the prices. Cost items were reported separately from the costs. The operating costs (tests and procedures performed) were measured. The boundary adopted was the hospital. The cost estimates were based on actual data. The unit costs used in the analysis were averages of actual test prices from five local hospitals. The price year was not reported. Costs associated with additional specific conventional tests, whenever an indeterminate finding was obtained in the intervention, were included in the total costs of this strategy. Costs of minor procedures such as routine blood testing were omitted from the analysis.

Indirect Costs
Not included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was conducted.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The total cost of the intervention was $37,850, whereas the total cost of the comparator was $68,192.
Synthesis of costs and benefits
Not performed.

Authors' conclusions
The staging algorithm of whole-body FDG-PET and selected imaging tests may be an accurate and cost-effective method for staging HD and NHL.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of benefit
The authors acknowledged that the estimate of measure of effectiveness cannot be guaranteed due to the low numbers used in the study and to the study design. No dates for data collection were reported.

Validity of estimate of costs
The study reported the quantities of resource use concerning the diagnostic procedures employed in the study. The price year was not reported. The costs associated with minor procedures, such as routine blood testing, were omitted from the analysis.

Other issues
This was reported to be the first study investigating the cost-effectiveness of this intervention. The generalisability of the study results to other settings was not addressed. Overall, given the lack of a prospective study design, the small sample size, lack of sensitivity analysis, and statistical analysis of the costs, the results need to be treated with some caution.

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