UNIVERSITI TEKNOLOGI MARA

PET-CT IN OESOPHAGEAL CANCER MANAGEMENT: A COST EFFECTIVENESS ANALYSIS (CEA)

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ABSTRACT

This study involved assessment of clinician's views on practicality, clinical efficacy and cost –effectiveness of PET-CT in oesophageal cancer management and decision making model-based economic evaluation to investigate the relative cost-effectiveness of PET/CT in oesophageal cancer management staging based on review of publications and retrospective data. Total of 73 clinicians included in the survey. Retrospective analysis of patient data from 2001-2008 taken from Royal Liverpool &Broadgreen University Hospital Trust (RLBUHT) medical records and North West Cancer Intelligence Services (NWCIS) database for the same period. A decision tree was developed using TREEAGE software. The relevant data on accuracy, sensitivity and specificity of each diagnostic test were linked in the model, to cost and the primary outcome measure, cost per quality-adjusted life-year (QALY). The model estimated the mean cost associated with each diagnostic procedure and assumed that patients entering the model were aged 35-75 years. The results of the cost-effectiveness analysis are presented in terms of the incremental cost-effectiveness ratios (ICERs).PET compared with conventional work-up results for ICER for the strategy estimated at £28,460 per QALY; PET/CT compared with PET for ICER was £ 32,590 per QALY; and the ICER for PET/CT combined with conventional work-up versus PET/CT was £ 44,118. The package become more expensive with each additional diagnostic test added to PET and the more effective in terms of QALYs gained. The conventional work-up is the preferred options as probabilistic sensitivity analysis shows at a willingness-to-pay (WTP) threshold of £ 20,000 per QALY. Result of the current analysis suggests that the use of PET/CT in the diagnosis of oesophageal cancer is unlikely to be cost-effective given the current WTP thresholds that are accepted in the United Kingdom by decision-making bodies such as the National Institute for Health and Clinical Excellence and National Health Services. Based on the current model and given the limitations that are apparent in terms of limited availability of data, the modelling suggests that the most cost-effective diagnostic strategy are the conventional work-up given current data. Future studies need to secure robust cost data that can be verified from more than one source for the diagnostic tests involved. It is also crucial to have reliable and verifiable data on quality of life associated with this clinical condition.

ACKNOWLEDGEMENT

This study starts from a dream and passion of one young researcher who want to offer more than technical expertise for the oncology patients. While working in Mount Miriam Cancer Hospital, I fall in love with the imaging side of treatment planning. It's amazed me to learn the colourful world of imaging that can change lots of people life. Every streak of colour and even the blurry black and white images had a hidden treasure of information that requires an expert eye to unlock it. I learn a lot through my treasured time there but I want to give more to the patients, not just crucial doses of radiation but improvise management and improvement in their quality of life. This inspired me to join the academic line in hopes that I can inspire more people to join this line of profession and provide better quality of services to patients.

In order to inspire others, I need to find my source of inspiration for research and I found it during a meeting with Prof Nordin Jalil, a mentor, the one who spark my first love with PET-CT. He inspired me with his story and achievement in PET-CT, his blood and tears to get the PET-CT up and running in our beloved country, not just for the sake of research but for the hope that it can give to our nation and most importantly to people who is close to our hearts, our patients. From that day onwards, I never looked back as I am hooked on PET-CT and this research is one of the big steps that bring me into the whirlwind world of PET-CT.

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'There was no greater injustice in a country than our distribution of healthcare"

-Martin Luther King-

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