ONCODAILY MEDICAL JOURNAL

abstract

Optimising Follow-up PET/CT Surveillance in Head and Neck Cancer Using Lean Principles: Can we Reduce Low-Value Imaging and Scanxiety?

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DOI: 10.69690/ODMJ-018-3101-6639

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Asia and Middle East Society of Therapeutic Radiation and Oncology
Affiliated with ASTF

abstract

Optimising Follow-up PET/CT Surveillance in Head and Neck Cancer Using Lean Principles: Can we Reduce Low-Value Imaging and Scanxiety?

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Introduction: Routine post-treatment (Radiation) PET/CT surveillance in head and neck cancer (HNC) is frequently requested in asymptomatic patients despite limited evidence. Low-value routine imaging not based on guidelines, mainly attributable to defensive medical practices, leads to unnecessary radiation exposure, patient anxiety ('Scanxiety'), and resource strain. Lean management principles emphasise creating value by eliminating waste. This retrospective audit aims to evaluate the clinical utility of follow-up PET/CT in HNC and identify opportunities for Lean optimisation to improve outcomes.

Methodology: A retrospective audit of 98 HNC patients (median age, 59 years; male-to-female ratio, 3:1) treated with external beam radiotherapy over a four-year period was conducted. All PET/CT scans performed after curative-intent treatment were reviewed. Scans were divided into three categories: routine follow-up, clinically triggered, or response assessment. Key metrics included the pickup rate (scans with actionable findings divided by total scans) and the proportion of low-value scans (routine scans with no trigger or management change divided by total scans).

Results: Among 98 scans, 51(52%) were routine follow-up, 38(39%) trigger-based, and 9(9%) response assessments. Positive findings were seen in 47(47.9%) scans; 39 (39.8%) led to management changes (pickup rate 82.3%). Low-value imaging formed 46.9%, mainly routine asymptomatic scans. Eight incidentalomas were noted, and seven lung lesions led to further imaging without outcome change. Staging PET/CT was often delayed due to system strain in high-volume centres.

Conclusion: More than one-third of the follow-up PET/CT in HNC represented low-value imaging. 'TPS to TPS' concept: transforming imaging from routine low-value FU to true value in high-precision Radiation oncology, utilizing for staging and target delineation in the (TPS) -treatment planning system. Implementing Lean principles and encouraging trigger-based imaging requests, MDT vetted decisions, and adherence to guidelines can minimise

waste, reduce scanxiety, improve access for high-priority cases, and also lower CO2 emissions, promoting environmental sustainability.

Conflict of interests: The authors declare no conflict of interests.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.