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Invited Commentary

Commentary on "FDG-PET predicted unfavorable tumor histology in living donor liver transplant recipients; a retrospective cohort study"

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1. Commentary

Hepatocellular carcinoma (HCC) is among the most rapidly increasing causes of cancer-associated mortality and its incidence is found to be growing in the recent years. The increasing burden is attributed to the rise in metabolic liver disorders like diabetes mellitus, obesity, and non-alcoholic fatty liver disease. Treatment options depend on various factors including tumor size, liver function and general physical status. The options range from curative approaches like liver resection, liver transplantation, radiofrequency ablation, percutaneous alcohol injection to non-curative loco-regional tumor therapies such as transarterial chemoembolization, transarterial radioembolization and systemic treatment with agents like sorafenib.

Positron emission tomography using 18F-fluorodeoxyglucose (FDG-PET) is emerging as a highly effective nuclear imaging tool for diagnosis, treatment allocation as well as assessment of post-intervention response in oncology. In the case of HCC, FDG-PET is not a recommended diagnostic test as the sensitivity is around 50% only, which is insufficient compared with other imaging modalities like multi-detector CT or contrast-enhanced MRI which can reach 90% sensitivity [1]. However, studies do suggest that FDG uptake measurement is able to identify patients who will benefit from hepatectomy when implemented in a neo-adjuvant setting prior to rescue transplantation [2]. In addition, a large number of recent studies have identified FDG-PET as a powerful predictor of poor survival in the transplant setting. The extraordinary prognostic value of FDG-PET in liver transplantation could be due to its capability to correlate with microvascular invasion, which obviously is one of the best predictors of HCC recurrence [3]. Also, it is suggested that FDG-PET may be of value in cases with unexplainable increase of AFP in the post-intervention setting when contrast-enhanced CT remains inconspicuous [4].

The current study was a retrospective cohort study which looked at the association between FDG-PET and tumor histology in living donor liver transplantation (LDLT) recipients and their outcome [5]. The study included 258 patients with primary liver tumors who underwent FDG-PET before LDLT. They defined unfavorable tumor histology as primary liver tumor other than a well or moderately differentiated histology. Among the patients, 13 were found to have unfavorable tumor histology. The authors found FDG-PET positivity to be strongly associated with unfavorable tumor histology. Also, both FDG-PET positivity and unfavorable tumor histology were found to be significant independent predictors of tumor recurrence and overall survival. Based on their findings, the authors recommend that FDG-PET-positive tumors with high FDG uptake be considered contraindication for LDLT.

Nevertheless, this study is not without drawbacks of its own. The comparatively small sample size does reduce the external validity and significance provided by the results. Also, the study design being single-centre retrospective might add to some patient selection bias. In spite of these, the novelty of the research idea and the strongly positive results should throw open further avenues for similar research in the future. As a conclusion, the use of FDG-PET as a screening marker for selecting patients with liver tumors for transplantation can definitely be recommended for adoption in clinical practice.

Declaration of interest

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