Usefulness of FDG-PET/CT Imaging In Surgical Oncology

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Data from National Cancer Programs and registries from various countries provide evidence regarding incidence, demographic pattern, risk factors, treatment and outcome related to different malignancies. This information is updated each year. Early diagnosis of tumors and stringent follow up, in order to identify response to treatment and recurrence, are important factors in the management of oncology patients. Surgeons work as member of multidisciplinary team. Knowledge about diagnostic modalities and follow up protocols must be known to surgical team members as well. With advancement in technology new diagnostic aids are available for planning treatment of different tumors.

Positron emission tomography (PET) scan is an important diagnostic adjunct in the field of oncology. This falls in the field of nuclear medicine. PET scan uses radioactive tracer. The commonly used tracer in this method is F-18 fluorodeoxyglucose (FDG). It has similarity with that of glucose which is used by the cells for their function. Cancer cells are metabolically more active thus they absorb this tracer at higher rate. This is picked up by gamma camera. Thus tumors may be diagnosed much earlier than other diagnostic modalities.[1] However there are limitations of this technique as in many inflammatory conditions increased uptake is also observed.

The role of CT scan in oncology is well established. Addition of PET scan with this modality further enhanced the understanding about tumors. The clinical application of this technique is reported nearly 30 years ago. It is called a hybrid imaging modality. The two technologies complemented each other. CT scan provided anatomic details while PET added information at molecular level. PET/CT helps in accurate staging, response to the treatment provided and also the recurrence of the disease. With availability of equipment the needs related to standardization of different protocols, clinical application, training etc emerged. For this reason collaborative working group was made in which representatives from the American College of Radiology, the Society of Nuclear Medicine, and the Society of Computed Body Tomography and Magnetic Resonance participated and made many recommendations.[2]

Clinical application of PET/CT is increasing over the years. In a study from Egypt it was found that this modality was superior than conventional imaging modalities for staging, response to treatment and follow up to detect recurrence.[3] In a study by Kitajima et al where they reviewed literature on the subject of use of PET/CT in gastrointestinal malignancies in adult patients it was noted that there are many limitations of this diagnostic modality. This must be kept upfront when the decisions are taken about the response to treatment and recurrence of tumors in follow up.[4]

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