Positron-Emission Tomography–Computed Tomography for Cancer Screening: Boon or Bane

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We read the article by Caliskan et al. [1] with great interest. The authors have reported a case of incidentally detected rectal cancer in a patient undergoing positron-emission tomography–computed tomography (PET-CT) examination for assessment of a screen detected pulmonary nodule. Though PET-CT may be able to further characterize the lesion (more than 8-mm solid or partly solid pulmonary nodule) identified on screening CT, it is of low specificity if the patient has granulomatous disease. Based on the identification of a clinically asymptomatic rectal cancer in this patient, the authors have pitched for utilization of PET-CT for cancer screening. They have flagged the government policy for not reimbursing the cost of PET-CT done for cancer screening. The case report is interesting, but its scientific value is anecdotal, at best.

There are some vital questions which need to be addressed before one endorses the use of PET-CT for cancer screening. Firstly, there has been a lot of scepticism about the benefits of cancer screening: whether it really leads to a reduction in solid tumours related mortality rates in the screened population. It needs to be further clarified that differences in survival rates following cancer screening do not always translate into differences in mortality rates due to ‘lead time’ and ‘over diagnosis’

bias. PSA screening for prostate cancer has been a classic example of how the screening failed to reduce the mortality rates despite having improvement in survival rates. Secondly, using PET-CT for cancer screening has its own pitfalls. The impact of PET-CT cancer screening on the cancer-related mortality has not been investigated by any prospective randomized controlled trial. The cost effectiveness and efficiency of PET-CT and other conventional screening tests (mammography, colonoscopy etc.) has also never been compared in any previous study to ascertain if it can lead to superior detection of those lesions which are missed by conventional screening tests. This is a well-known fact that small malignant or pre-cancerous lesions are likely to be missed by a PET-CT (for example, in colon cancer) while resection of these early lesions actually may bring about reduction in cancer-related mortality [2]. Moreover, false positive findings are a major concern as they result in further work up and secondary expenditure. Another area of concern is FDG-negative malignant lesions which may not be evident of PET-CT and may lead to false negative results [3]. One of the criteria for a good screening test is that it should minimally affect the non-diseased screened individuals. In the absence of robust data to support benefit of PET-CT in cancer screening, its associated radiation hazard remains an important deterring factor against its indiscriminate use.

The expansion of indications for PET-CT in oncology is inevitable in the time to come. However, various pitfalls of this extremely alluring imaging investigation need to be explained to the patients/asymptomatic persons with complete professional integrity.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

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