



My Doctor Knows Dr Yogendren Letchumanasamy

THE ROLE OF PET/CT SCAN IN CANCER TREATMENT

PET/CT is a form of hybrid imaging that combines computed tomography (CT), an anatomical imaging, with positron emission tomography (PET), a functional imaging.

The PET/CT scanners are placed in the nuclear medicine department of hospitals. A large number of patients who undergo this procedure are cancer patients.

According to the Malaysian National Cancer Registry Report (2012-2016), 115,238 new cancer cases were registered from 2012 to 2016, while 82,601 cancer-related deaths were reported.

There are multiple modalities involved in the diagnosis and staging of cancer.

Once a diagnosis of cancer is confirmed by a histopathological report, the oncologist would want to stage the cancer so that an appropriate method of treatment can be initiated.

Undergoing a PET/CT procedure involves the injection of a small amount of a radioactive substance in the body.

Usually, the patient is required to be present at the nuclear medicine department in the morning after an overnight fast.

They would need to bring along with them all the results of any previous investigations that were done.

After a quick review of the diagnosis and the indication for the procedure, the patient is injected with a radioactive agent – usually a radioactive form of glucose.

The patient is then placed in a quiet room for the radioactive agent to circulate in the body and concentrate at the primary site of the cancer and at the areas where it has spread.

After an hour, the patient is taken to the scan room for the procedure.

Imaging test pinpoints area of cancer origin and extent of spread



PET/CT is a useful tool to map out the possible sites where the cancer first originated.

During the procedure, the patient is required to be still. After the scan, the patient is allowed to eat and to go home.

The images are then processed and then viewed by the nuclear medicine physician.

In this fast paced era, there is a race to complete reports urgently.

However, a detailed report goes a long way to map out treatment strategies than an immediate, but brief, report that does little more than satisfy the curiosity of the patient.

With the prevalence of personalised medicine, the information obtained by PET/CT and several other investigations would help the oncologist decide on the best treatment modality.

When a metastasis is found and the primary care doctor is unsure of the primary site of the cancer – for example, if it originated from the lung, breast or colon – PET/CT is a useful tool to map out the possible sites where the cancer first originated.

In addition to this, PET/CT being a functional imaging modality is excellent for pinpointing the optimal sites for biopsy.

After the treatment has been instituted,

PET/CT is usually repeated to decide how much the treatment has worked and if there is a need to alter the treatment modality or to proceed with the current mode of therapy.

PET/CT is also done after the completion of chemotherapy to gauge the cancer’s extent of regression.

In cases of complete remission where the cancer is no longer present, PET/CT is used as a surveillance tool.

The questions that frequently pop up in a patient’s mind include “Is this a safe procedure?” and “Will the radioactivity harm my healthy cells in any way?”

But I always assure my patients that they will not turn into the next Spider-Man or Hulk. The amount of radioactivity is so infinitesimal that it would not have any deleterious effects on the patient’s body or wellbeing.

In this day and age of scientific breakthroughs and the advancement of technology by leaps and bounds, the use of PET/CT has expanded from being merely a diagnostic tool.

The terminology “theranostics” is employed when PET/CT is used to diagnose and radioactive isotopes are then used to treat.

This is done in certain forms of cancers such as neuroendocrine tumours and prostate cancers.

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