



## PET-CT in Bangladesh.....A NEW HORIZON OPENS.....

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Positron Emission Tomography–Computed Tomography (popularly known as PET-CT or PET/CT) is a nuclear medicine imaging technique. PET is called the emission technique where gamma rays created during the emission of positron are detected by the scanner. Positron emitting radionuclides tagged to specific tracers are injected intravenously into the patient. These are then taken up by various organs or tissues either physiologically or pathologically and gives an image map that is essentially functional.

On the other hand, CT is called the transmission technique where X-ray passes through the body and at the same time from opposite direction, detection of attenuation of the body is carried out by the detectors and forms an anatomical image.

PET and CT are fused on a single gantry into a hybrid technology for the ultimate combination of functional and anatomical image in single frame.

Nuclear Medicine in Bangladesh is entering a new era with the inclusion of PET/CT. PET-CT has revolutionized cancer diagnosis and therapy. It is a stronger diagnostic tool for the early detection of cancer, to determine the staging of cancer, therapy planning and follow-up. One very important application of PET-CT is the treatment planning system (TPS) i.e. how much dose is required at the site of tumor for the treatment of a cancer patient before a patient undergoes a radiotherapy process. It can precisely determine the site where radiation needs to be focused.

Since 2015 the National Institute of Nuclear Medicine and Allied Sciences started to perform PET-CT examination for the first time in public sector. So far PET-CT diagnostic facilities were only available in the private sector.

The good news is that another PET-CT will be commissioned in 3 months in the public sector at nuclear medicine institute, Dhaka Medical campus, that will enhance the patients servicing capacity. We have to think about the optimal usage of this highly sophisticated and expensive technology. As mentioned above, PET-CT particularly has a very important role in oncology. It helps to differentiate malignant from benign lesions in many cases and is invaluable for image guided radiotherapy. In addition, it can give valuable information about the metabolism of the myocardium and is also useful in diagnosis of many non-malignant diseases.

As before, this year too, a number of interesting papers on a very wide range of topics have been published. These will expand the horizon of the reader's knowledge. Therefore colleagues, good luck and keep it up!