**Oncology F18-FDG PET CT Preparation and Scanning Protocol**

**Patient Preparation**

1. Patient Fasting:

 - Patients should fast for at least 4-6 hours before the scan.

 - Patients are allowed to drink water during the fasting period.

 - Diabetic patients should continue their regular medication.

 - Pre-scan glucose check. Desired blood glucose level: <150 mg/dL, with blood glucose not to exceed 200 mg/dL

2. Hydration:

 - Drink 500-1000 mL of water 1-2 hours before the scan.

3. Medication:

 - Patients should continue their scheduled regular medications unless otherwise instructed by referring physician.

4. Voiding:

 - Patient should void immediately before the scan.

**Radiopharmaceutical Administration**

Radiopharmaceutical: 18F-FDG

2. Dose and Administration:

 - Typically, 3-5 MBq/kg (0.08-0.15 mCi/kg) of body weight intravenously.

 - Record injection time.

3. Uptake Period:

 - Patient to rest for 60-90 minutes post tracer injection.

**PET/CT Scan Technique**

1. Patient Positioning:

 - Supine, arms up.

2. Scan Coverage:

 - Skull-base to mid-thigh.

3. CT Acquisition:

* Non-contrast, axial 3 mm low dose attenuation correction CT. This scan is not of diagnostic quality and is performed merely for attenuation correction.

 CT parameters:

 Slice thickness: 3mm

 Tube voltage: 120-140 kVp

 Tube current: 30-80 mA

4. PET Acquisition:

3D mode, 2–3-minute scan time/bed position.

5. Image Reconstruction:

* Ax PT non-attenuation corrected (NAC).
* Ax PT (AC)
* Cor PT (NAC)
* Cor PT (AC)
* Rotating 3D PT MIP
* Ax, Sag, & Cor Fused images.

**For patients with blood glucose >200 mg/dL (11.1 mmol/L)**

1. Blood Glucose Monitoring:

 - Confirm the elevated blood glucose level using a point-of-care glucose meter.

 - Document the blood glucose value and the time of measurement.

2. Hydration and Insulin Administration:

 - Intravenous (IV) fluids, such as normal saline, to help dilute the blood glucose and promote diuresis.

 - If the patient is diabetic, consider administering a short-acting insulin (regular insulin).

 - Monitor blood glucose levels every 30-60 minutes.

3. Delaying the PET/CT scan:

 - Delay the PET/CT scan until the blood glucose level is below 200 mg/dL (11.1 mmol/L).

4. Rescheduling the Scan:

 - If the patient's blood glucose level does not decrease to the desired range within a reasonable time (e.g., 1-2 hours), the PET/CT scan may need to be rescheduled.

 - The referring physician should be consulted to determine the appropriate course of action, which may include:

 - Adjusting the patient's diabetic medication regimen before the next scheduled scan

 - Considering alternative imaging modalities, if clinically appropriate

5. Acquisition and Reconstruction:

 - If the patient's blood glucose level is successfully lowered to the desired range (<200 mg/dL), then proceed with scanning per standard acquisition protocol.