



Fludeoxyglucose F 18

Overview: Fludeoxyglucose F 18 (FDG F18) is a radioactive glucose tracer developed to map brain metabolism, and it was the first tool to measure regional glucose use in living humans. Currently FDG F 18 is used for diagnosis in heart disease, seizure disorders, and oncology.

Mechanism of Action: FDG F 18 is a glucose labeled with fluorine-18 that enters cells via GLUT transporters and is phosphorylated. Unlike glucose, it is not further metabolized and becomes trapped intracellularly. Tumor cells accumulate more FDG due to increased glucose uptake and glycolysis, allowing detection by PET imaging through fluorine-18 radiotherapy.

Indications: Positron emission tomography (PET) imaging.

Dosing, Adult: IV (based on 70 kg patient): 5 to 10 mCi (185 to 370 MBq).

Dosing, Pediatric: IV: 2.6 mCi (96.2 MBq).

Administration: IV- Initiate imaging within 40 minutes of administration; obtain static emission images 30 to 100 minutes after injection.

Dosage Adjustment:

Altered Kidney Function: No dosage adjustment required/ recommended.

Altered Liver Function: No specific dosage recommendations; pharmacokinetics not studies.

Special Population:

- **Pregnancy:** FDG F 18 crosses the placenta; use based on risk-benefit clinical decision, ideally 10 days post-menses onset.

- **Breastfeeding:** Routine cessation is unnecessary due to low milk excretion, but limit close mother-infant contact for 12 hours post-injection to reduce external radiation risk.

Adverse effects & Contraindications: Hypersensitivity reaction.

Nuclear pharmacy considerations:

1. Metformin: Hold for ≥ 48 hours before intestinal PET scans and monitor blood glucose.
2. Fasting/Hydration: Hydrate 4 hours prior; fast 4–6 hours for oncology/neurology and ensure 2 days of normal glucose.
3. Cardiology: Administer 50–75g of glucose before imaging to help locate cardiac ischemia.
4. Bladder Safety: Void immediately after imaging and frequently for at least 1 hour to reduce radiation exposure.
5. Radiation Safety: Follow standard shielding, handling, and dispensing precautions under experienced supervision.