

BRAIN SPECT SCAN WITH DaTScan
UPDATED: May 2019

CPT CODE: 78607

Indications: DaTscan is used to visualize striatal dopamine transporter (DaT) in patients with suspected Parkinsonian syndromes (PS), including:

- idiopathic Parkinson's disease (PD)
- multiple system atrophy (MSA)
- progressive supranuclear palsy (PSP)

Patient Prep: A dose of a thyroid blocking agent, Lugol's Solution or SSKI, must be given at least 1 hour prior to the administration of radiopharmaceutical. This time will be part of the patient's appointments.

Patient is to increase hydration prior to and after receiving DaTscan with frequent voiding for the next 48 hours.

Scheduling:

- Requires 2-1/2 hour presence; 30 minutes for administration, and 90 minutes camera time.
- Dose available on Tuesday, Wednesday, Thursday and Friday after 0930.
- The order for dose must be placed with Nuclear Pharmacy by 1500, six (6) days before scheduled dose.
- Cancellation of dose must be within five (5) days prior to scheduled appointment.
- Medications that bind to the dopamine transporter with high affinity may interfere with the DaTscan images. The impact of dopamine agonists and antagonists has not been established at this time.
- Until this scan is quantified the following review will not be performed: Pharmacist will verify and document drug interactions and notify ordering physician. Drugs that are found to interact will **not** cause an automatic cancellation. This is the ordering physician's choice.

Radiopharmaceutical

& Dose:

Thyroid Blockade

When 123-I-MIBG is used, thyroid blockade is obtained by one oral administration of ~130 mg iodine from either Lugol's Solution (preferred) or saturated potassium iodine (SSKI) (formulary dependent), at least one hour before the radiopharmaceutical is administered. This blockade is sufficient for about 24 hours; about the same time it should take any excess/free iodine to be excreted.

- Lugol's - When supplied in a 5% solution there is ~120mg/ml of iodine the dosing breakdown is as follows
 - >12 years in age: 1 ml or ~120 mg
 - >3 - 12 years in age: 0.5 ml or ~60 mg
 - 1 month to 3 years: 0.25 ml or ~30mg
 - Neonate (<1 month): 0.125ml or ~15 mg
- SSKI: Supplied in 1000mg/ml or 1000mg/20 drops. The dosing breakdown is as follows
 - >12 years in age: 0.15 ml or 3 drops or ~150 mg
 - >3 - 12 years in age: 0.1 ml or 2 drops or ~100 mg
 - 1 month to 3 years: 0.05 ml or 1 drop or ~50mg
 - Neonate (<1 month): 0.05 ml or 1 drop or ~50mg
- Notes
 - Lugol's or SSKI can be mixed with or followed by any desired liquid.
 - These doses/volumes are approximate and erroring on the side of higher is OK

Radiopharmaceutical

5 mCi +/- 20% of I-123 Ioflupane (DatScan). Administer DaTScan via slow infusion over 20 seconds.

Imaging Procedure:

1. Place IV and wait 5 minutes before injecting DaTScan.
2. Patient SPECT scanned 3-6 hours post-administration with a SPECT/CT camera.
3. The supplied headrest with restraints is used to enable consistent positioning and to minimize patient motion (e.g. tremors).
4. Patient's head should **NOT** be positioned with a lateral tilt (i.e. ear to shoulder tilt).
5. Images are to be checked for correct position prior to patient leaving department.
6. If images show a lateral tilt (i.e. ear to shoulder tilt) patient is to be repositioned and a repeat scan performed.

Imaging Device:

Infinia Hawkeye or Optima 640 SPECT/CT

Data Acquisition:

GE Protocol: I123 DaTscan

TOMO Key Parameters	Scan Mode
Mode :H	Scan Mode: Step_Shoot
Start Angle(deg): 0	Time per Acquisition (sec): 30
Patient Location: Head first Supine	# of Views per Scan: 360(180/head)
Body Part: Head	
Use Body Contour: Off	TOMO Corrections
Acquire CT/AC: Table Out	Energy Session: I123
Emission: First	Collimator: LEHR
CT/AC range: Partial	Peak: 159 kEv
Select on: *Emission	Energy Window: + 10%
Image Settings	TOMO Location
Zoom: 1.5 (about 3.7 mm)	Total Angular Range: 360
Matrix: 128x128	Arc per Detector: 180
Pan Y: -20	View Angle: 3 View # 120
	Direction: CW

Table Height: set @ 73 (varies due to need for isocentric positioning of brain)

Radial: 11-15 cm (13 cm ideal but varies per patient)

Data Analysis:

Processing Protocol: Volumetrix MI DaTscan

PROTOCOL Settings	
Per Filter	Butterworth
Critical Frequency	.55 (range .5 to .6)
Power Factor (order)	10
Pixel Size	3.77 mm (range 3.5 - 4.5 isotropic)
OSEM Iterations	2
OSEM Subsets	10

POST processing: Covert Ct file to Hounsfield units

PACS:

Screen Captures:

Transaxial slices (ONLY)
Transaxial slices fused with CT slices
CT converted to Hounsfield units
CT, TOMO_IRAC_TRANSAXIALS
MIP

Send to the **XELMD2 workstation** completely processed patient study.

Interpretation:

The caudate putamen should have symmetric uptake of the radiopharmaceutical.

Comments:

A Nuclear Medicine staff or resident physician should be consulted to determine if additional views are indicated.

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