

# Guide to $^{18}\text{F}$ -FDG PET-CT in Lymphoma UK

## 1. Hodgkin Lymphoma

### 1.1. Staging/Re-staging

Baseline PET-CT examinations will be acquired from skull base to upper thighs as a standard, unless there are known sites outside the imaged volume, e.g. lower limb disease. Intravenous (IV) iodinated contrast will be administered unless:

- Recent ( $\leq 6$  weeks) available contrast-enhanced CT (CECT).
- IV contrast allergy.
- Significant renal impairment i.e. estimated glomerular filtration rate (eGFR)  $\leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

### 1.2. Interim Assessment (iPET-CT)

All patients with HL should undergo interim PET-CT (iPET-CT) following completion of 2 cycles of ABVD (**A**driamycin, **B**leomycin, **V**inblastine, **D**acarbazine) chemotherapy.

iPET-CT will be acquired from skull base to upper thighs as a standard, **without** IV contrast as information on change in metabolic activity is the major purpose of the study.

- Timing of iPET-CT in relation to recent chemotherapy is vital.
- Each cycle of ABVD lasts 28 days with 2 chemotherapy infusions in each cycle (day 1 and day 15).
- iPET-CT should be scheduled for **day 11-13** of the second chemotherapy administration (cycle 2B), i.e. **day 25-27** of cycle 2.
- Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using time of flight (TOF) ordered subset expected maximisation (OSEM) reconstructions **without** PSF.

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	Mon	Tues	Weds	Thurs	Fri	Sat	Sun
Cycle 2A →	1 Chemo	2	3	4	5	6	7
	8	9	10	11	12	13	14
Cycle 2B →	15 Chemo	16 x	17 x	18 x	19 x	20 x	21 x
	22 x	23 x	24 x	25 ✓	26 ✓	27 ✓	28
Cycle 3A →	29 Chemo	30	31				

= Chemotherapy infusion.

= Optimal timing of iPET-CT

= Imaging too early due to cellular stunning of glucose metabolism

= Imaging too early due peak chemotherapy inflammatory response.

## 1.3. End of Treatment Assessment (ePET-CT)

ePET-CT will be acquired from skull base to upper thighs **with** IV contrast unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

ePET-CT should be ideally performed **6-8 weeks** following completion of chemotherapy but can be performed a **minimum of 3 weeks** post-chemotherapy.

ePET-CT should be performed a **minimum of 12 weeks** following completion of radiotherapy.

Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

## 2. Diffuse Large B-Cell Lymphoma (DLBCL)

### 2.1. Staging/Re-Staging

Baseline PET-CT examinations will be acquired from skull base to upper thighs as a standard, unless there are known sites outside the imaged volume, e.g. lower limb disease. IV contrast will be administered unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$
- Unable to gain sufficient IV access.

**2.2. Interim Assessment (iPET-CT)**

iPET-CT should be performed following completion of 2 cycles of R-CHOP (Rituximab, Cyclophosphamide, Hydroxydaunorubicin, Oncovin, Prednisolone). iPET-CT will be acquired from skull base to upper thighs as a standard, **without** IV contrast as information on change in metabolic activity is the major purpose of the study.

- Each cycle of R-CHOP lasts 21 days.
- iPET-CT should be scheduled for **day 18-20** of the second chemotherapy administration.
- Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF

	Mon	Tues	Weds	Thurs	Fri	Sat	Sun
Cycle 2 →	1 Chemo	2 x	3 x	4 x	5 x	6 x	7 x
	8 x	9 x	10 x	11	12	13	14
	15	16	17	18 ✓	19 ✓	20 ✓	21
Cycle 3 →	22 Chemo	23	24	25	26	27	28
	29	30	31				

- = Chemotherapy infusion.
- = Optimal timing of iPET-CT
- = Imaging too early due to cellular stunning of glucose metabolism.
- = Imaging too early due peak chemotherapy inflammatory response

**2.3. End of Treatment Assessment (ePET-CT)**

ePET-CT will be acquired from skull base to upper thighs **with** IV contrast unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

ePET-CT should be ideally performed **6-8 weeks** following completion of chemotherapy but can be performed a **minimum of 3 weeks** post-chemotherapy.

ePET-CT should be performed a **minimum of 12 weeks** following completion of radiotherapy.

Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

## 3. Follicular Lymphoma (FL)

### 3.1. Staging/Re-staging

Baseline PET-CT examinations will be acquired from skull base to upper thighs as a standard, unless there are known sites outside the imaged volume, e.g. lower limb disease. IV contrast will be administered unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

### 3.2. Interim Assessment (iPET-CT)

iPET-CT (if required), should be performed following completion of 2 cycles of chemotherapy, e.g. R-CVP (Rituximab, Cyclophosphamide, Vincristine, Prednisolone).

iPET-CT will be acquired from skull base to upper thighs as a standard, **without** IV contrast as information on change in metabolic activity is the major purpose of the study.

- iPET-CT should be scheduled for as close as possible to the next chemotherapy cycle.
- Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

### 3.3. End of Treatment Assessment (iPET-CT)

ePET-CT will be acquired from skull base to upper thighs **with** IV contrast unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment, i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .

- Unable to gain sufficient IV access.

ePET-CT should be ideally performed **6-8 weeks** following completion of chemotherapy but can be performed a **minimum of 3 weeks** post-chemotherapy.

ePET-CT should be performed a **minimum of 12 weeks** following completion of radiotherapy.

Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

## 4. Other Lymphomas

### 4.1. Staging/Re-staging

Baseline PET-CT examinations will be acquired from skull base to upper thighs as a standard, unless there are known sites outside the imaged volume, e.g. lower limb disease. IV contrast will be administered unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.
- Significant renal impairment, i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

### 4.2. Interim Assessment (iPET-CT)

iPET-CT (if required) should be performed following completion of 2 cycles of chemotherapy.

iPET-CT will be acquired from skull base to upper thighs as a standard, **without** IV contrast as information on change in metabolic activity is the major purpose of the study.

- iPET-CT should be scheduled for as close as possible to the next chemotherapy cycle.
- Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

### 4.3. End of Treatment Assessment (ePET-CT)

ePET-CT will be acquired from skull base to upper thighs **with** IV contrast unless:

- Recent ( $\leq 6$  weeks) available CECT.
- IV contrast allergy.

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- Significant renal impairment, i.e.  $eGFR \leq 30\text{ml}/\text{min}/1.73\text{m}^2$ .
- Unable to gain sufficient IV access.

ePET-CT should be ideally performed **6-8 weeks** following completion of chemotherapy but can be performed a **minimum of 3 weeks** post-chemotherapy.

ePET-CT should be performed a **minimum of 12 weeks** following completion of radiotherapy.

Scans will be reported according to the 5-point scale (5PS), i.e. Deauville criteria, using TOF-OSEM reconstructions **without** PSF.

## Revision History

Version	Date Created	Created By	Description of change
1.0	May 2019	Lead PETCT Radiographer and Dr Manil Subesinghe	New Manual
1.1	July 2020	Lead PETCT Radiographer and Dr Manil Subesinghe	No changes - annual review
1.2	August 2021	Lead PET/CT Radiographer	No changes - annual review