

Donor Lymphocyte Collection and Infusion

Donor Lymphocyte Infusions (DLI's) may be given after allogeneic bone marrow transplantation if there is evidence of disease progression, or resistance, consolidation of high risk disease or if there is a mixed chimera. None of these situations is an absolute indication for DLI.

Management of Unrelated Donor Lymphocyte Collection

The co-ordinator will:

- Check whether there is stored DLI from initial harvest.
- If there is no frozen DLI, they should liaise with the appropriate donor registry to arrange the date of collection and transportation of the product to Oxford.
- Ensure that donor registry documentation is completed and signed.
- Liaise with NHSBT SCI to arrange receipt, processing, cryopreservation and issue of the DLI harvest.
- Ensure that NHSBT 5071 form is completed and signed. Book the recipient into the Day Treatment Unit to receive DLI and inform the patient.

Management of Sibling Donor Lymphocyte Collection

Donor assessment will be conducted in the same manner as pre-bone marrow or peripheral blood stem cell collection. As per B2.26 Related donor pathway without the need for GCSF administration prior to collection.

1. Upon confirming suitability to donate the BMT Nurse co-ordinator/doctor will complete NHSBT referral forms, the BMT Nurse Co-ordinator will confirm the date of the donor lymphocyte collection & first dose of the donor lymphocyte infusion with the donor and the recipient.

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Patient assessment

The patient should be made aware of the need and indication for the DLI therapy. Patients should be consented in clinic and consent form uploaded onto EPR. It is recommended that patients are appropriately restaged shortly prior to DLI therapy to enable adequate monitoring of disease response. Mixed chimerism results should be confirmed on at least two separate tests. The patient should be warned of the potential risks of DLIs which are principally those of graft-versus-host disease (incidence ca. 30% but dependent on cell dose) and graft hypoplasia (incidence 5 – 10%).

Patients for DLI should be referred to BMT MDT for discussion to support planning.

Donor Lymphocyte Dosage

The evidence for DLI dosage is limited and so the following is for guidance only. Individual patient dosing should be carefully considered with the consultant, bearing in mind the potential risk and previous degree of graft-versus-host disease as well as the aggressiveness of the disease being treated. Dosing should be discussed with the BMT consultant.

Recipients of haploidentical transplants should receive the standard doses of DLI for relapse.

After the initial dose, the timing and frequency of subsequent infusions is dependent on individual patient circumstances and should be discussed with the consultant. Standard frequency for DLI is every 3 months but can be given bimonthly in cases of urgent clinical need. Target DLI dose is 150×10^6 /kg. Patients should be followed up in BMT clinic to assess for any post DLI complications, one month post or sooner if indicated. Patients should also be reviewed before subsequent doses of DLI to exclude any graft-versus-host disease or infection.

In patients who are not enrolled in clinical trials DLIs are given according to a suggested escalating schedule as follows:

0.5×10^6 CD3+ cells / kg (if clinically indicated)

1×10^6 CD3+ cells / kg

3×10^6 CD3+ cells / kg

1×10^7 CD3+ cells / kg

3×10^7 CD3+ cells / kg

1×10^8 CD3+ cells / kg

Patients with CML with molecular evidence of the BCR-ABL transcript post allogeneic bone marrow transplantation OR patients with mixed chimerism following RIC bone marrow transplantation will usually receive the initial lowest dose of 1×10^6 CD3+ cells / kg. If necessary, subsequent doses will be escalated according to response. Patients in whom there is clinical evidence of disease resistance or progression will usually require a higher initial dose of lymphocytes. Individual dosing should be discussed with the BMT consultant.

Donor Lymphocyte Infusion

- (1) The request for the donor lymphocytes should be made with NHSBT by completing the Stem cells and Immunotherapies issue request report form; signed by both consultant and SCI and returned back to be uploaded onto EPR.
- (2) DLI schedule to be issued weekly, distribution should include appropriate SCI staff. The DLI should be booked in advance with Day Treatment Unit, indicating whether the DLI is fresh or frozen and ensuring an encounter is created.

Donor lymphocytes should be prescribed electronically on EPR. Ensure that the correct pre-registration encounter for the day of DLI is chosen. Prescription of DLI should be completed as for any other therapeutics by using the DLI Prescribing PowerPlan. The required dose should be selected from the pre-set doses (as above based on the escalating schedule) together with the premedication drugs. Use free text for non-conventional doses. The date and time of DLI should be changed accordingly, as the requested time for administration will automatically appear as the time of prescription. For frozen doses patients are pre-medicated with paracetamol (1 g po 30mins pre DLI) and chlorphenamine (10 mg iv bolus 30mins pre DLI). Avoid hydrocortisone.

- (3) Donor lymphocytes are given intravenously either peripherally or via central venous catheter as a bolus or stat infusion in the Day Treatment Unit
- (4) Refer to Nursing care plan N62

(5) DLI powernote is completed on EPR

References

1. Marks DI, Lush R, Cavenagh J, Milligan DW, Schey S, Parker A, Clark FJ, Hunt L, Yin J, Fuller S, Vandenberghe E, Marsh J, Littlewood T, Smith GM, Culligan D, Hunter A, Chopra R, Davies A, Towlson K, Williams CD. The toxicity and efficacy of donor lymphocyte infusions given after reduced-intensity conditioning allogeneic stem cell transplantation. *Blood*. 2002 Nov 1;100(9):3108-14
2. D'Sa A, Peggs K, Pizzey A, Veruerth S, Thurai Sundaram D, Watts M, White H, Hale G, Waldman H, Goldstone A, Mackinnon S, Yong K. T- and B-cell immune reconstitution and clinical outcome in patients with multiple myeloma receiving T-cell-depleted, reduced-intensity allogeneic stem cell transplantation with an alemtuzumab-containing conditioning regimen followed by escalated donor lymphocyte infusions. *Br J Haematol*. 2003 123: 309-322

Audit

These processes are subject to the OxBMT audit programme.

Author(s)

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Circulation

NSSG Haematology Website

Review

Name	Revision	Date	Version	Review date
Dr Andy Peniket Dr Rob Danby	Cell dosage	July 2014	4.0	July 2016
Dr Katalin Balassa, BMT Fellow, Lara Rowley, BMT Specialist Nurse	Minor amendments and addition of EPR instruction	Feb 2017	5.0	Feb 2019
Dr Katalin Balassa, BMT Fellow Cristina Ovas, BMT Quality and Data Manager	Minor changes, discussed at the protocol day on 05.07.2019	June 2019	5.1	July 2021
Elizabeth Boggust, BMT Nurse	Minor changes	June 2023	5.2	June 2025
Elizabeth Boggust, BMT Nurse	Minor changes to dosage	October 2025	5.3	October 2027