# High dose MELPHALAN Regimen

## A SUMMARY

<table>
<thead>
<tr>
<th><strong>Indication</strong></th>
<th>Conditioning for autologous peripheral stem cell transplant for patients with multiple myeloma.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regimen number</strong></td>
<td><strong>MelHProt080704</strong></td>
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</tbody>
</table>

**Other similar regimens**

- Intermediate dose melphalan, oral melphalan regimens

**Total number of days in treatment cycle**

1

**Total number of days on which treatment is given**

1

**Days on which treatment is given**

1

**Usual number of treatment cycles**

One off treatment

**Toxicity**

- Myelosuppression: +++
- Alopecia
- Emesis
- Mucositis: +++

**Other toxicities**

(General to regimen and drug specific)

- Melphalan: Impaired bone marrow function (long term), nail bed pigmentation, skin rash/dermatitis

**Minimum IV access**

- Central line

**Extravasation risk**

- Neutral

**Scalp cooling**

- NOT USED

**Spermbanking/egg storage**

**Contra indications**

## B PRE CHEMO TESTS AND INVESTIGATIONS

**Prior to commencement of treatment**

FBC, U&Es, creatinine and LFT. 24 hour collection?? Consider ECG and/or echocardiogram if clinical suspicion of cardiac dysfunction.

**Prior to each cycle**

## C DRUG REGIMEN

**One off treatment**

<table>
<thead>
<tr>
<th><strong>MELPHALAN</strong></th>
<th>200 mg/m²</th>
<th>Intravenous Infusion</th>
<th>Day 1</th>
</tr>
</thead>
</table>

See administration section F for details of IV fluids and supportive care administration.

## D DOSE MODIFICATIONS

<table>
<thead>
<tr>
<th><strong>Test</strong></th>
<th><strong>Level</strong></th>
<th><strong>Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renal Impairment</strong></td>
<td>Creatinine cl &lt;40 ml/min</td>
<td>Give reduced of melphalan 140 mg/m².</td>
</tr>
</tbody>
</table>
Liver Impairment (UNL is upper normal limit)

No dose changes to melphalan are recommended unless excess toxicity occurs.

E  PREMEDICATION AND SUPPORTIVE MEASURES

(See section I for TTOs)

| Antiemetics | High emetic risk; pre-medication with ondansetron 8 mg oral or IV plus dexamethasone 8 mg oral or IV pre-chemo. |

F  ADMINISTRATION DETAILS

<table>
<thead>
<tr>
<th>Admin time</th>
<th>Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%</th>
<th>Intravenous Infusion</th>
<th>Over 1 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-1 hour</td>
<td>Frusemide 20-40 mg max 4 mg/min</td>
<td>Intravenous Injection</td>
<td></td>
</tr>
<tr>
<td>T-30 mins</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Establish a urine output of more than 500 ml/hour before commencing melphalan and give antiemetics

T=0

MELPHALAN in 500 ml Sodium Chloride 0.9% (Neutral) Intravenous Infusion Over 30 minutes

T+30 mins

Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%

Maintain urine output at 500 ml/hr, if necessary give additional dose of frusemide 20-40 mg Intravenous Infusion Over 90 minutes

T+2 hours

Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%

T+6 hours

Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%

T+12 hours

Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%

T+18 hours

Potassium Chloride 20 mmol in 1000 ml Sodium Chloride 0.9%

T+24.5 hours

Stem cell return

All of the above, apart from the stem cell return, are administered on day 1.

G  ADVERSE EFFECTS / TOXICITY

Melphalan is a potent myelosuppresant. There have been reports that melphalan is leukaemogenic.

Allergic reactions to melphalan manifest as urticaria, oedema, skin rashes and anaphylactic shock have been reported. Cross sensitivity with chlorambucil manifests as a rash. Nail bed pigmentation may also be due to melphalan.
**INTERACTIONS**

Melphalan may increase the nephrotoxicity of ciclosporin. Cimetidine may reduce the bioavailability of melphalan.

Cytotoxics in general increase the risk of agranulocytosis with clozapine and may reduce the absorption of phenytoin and digoxin.

**TTOs**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage</th>
<th>Instructions</th>
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</thead>
<tbody>
<tr>
<td>Ondansetron</td>
<td>8 mg</td>
<td>BD at least 3 days</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>2 mg</td>
<td>TDS 3 days</td>
</tr>
<tr>
<td>Allopurinol</td>
<td>300 mg</td>
<td>OD- for at least one week</td>
</tr>
<tr>
<td>Fluconazole</td>
<td>100 mg</td>
<td>OD- prophylaxis if patient has mucositis</td>
</tr>
<tr>
<td>Aciclovir</td>
<td>200 mg</td>
<td>TDS- prophylaxis</td>
</tr>
<tr>
<td>Lenograstim (micrograms)</td>
<td>263</td>
<td>SC OD from day +5 (day +1 is day following stem cell return)</td>
</tr>
<tr>
<td>Either</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domperidone</td>
<td>20 mg</td>
<td>TDS prnn (when required for the relief of nausea)</td>
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<tr>
<td>Or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metoclopramide</td>
<td>10-20mg</td>
<td>TDS prnn</td>
</tr>
<tr>
<td>Pentamidine nebule</td>
<td>300 mg</td>
<td>ONCE a month</td>
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**PATIENT INFORMATION**

Minimum to be given to the patient

Melphalan information sheet from Cancer Backup.
Alert card with contact numbers for Pembroke unit.

Other available information

Melphalan patient information leaflet by its manufacturers available from www.medicines.org.uk.

**ASSESSMENT OF RESPONSE/CLINICAL MONITORING**

**REFERENCES**

Melphalan SPC from eMC (www.medicines.org.uk) Accessed online 03.07.08
<table>
<thead>
<tr>
<th>Protocol written by:</th>
<th>Debra Robertson</th>
<th>Review by:</th>
<th>July 2011</th>
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<tbody>
<tr>
<td>Reviewed by:</td>
<td></td>
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