# Clinical trial results:
# A comparison of plerixafor/G-CSF with chemotherapy/G-CSF for stem cell transplantation

## Summary

| | |
|---|---|
| EudraCT number | 2009-013798-16 |
| Trial protocol | GB |
| Global end of trial date | 12 September 2013 |

**Results information**

| | |
|---|---|
| Result version number | v1 (current) |
| This version publication date | 25 July 2020 |
| First version publication date | 25 July 2020 |
| Summary attachment (see zip file) | phantastic publication (bcj201479a.pdf) |

## Trial information

**Trial identification**

| | |
|---|---|
| Sponsor protocol code | 3809 |

**Additional study identifiers**

| | |
|---|---|
| ISRCTN number | - |
| ClinicalTrials.gov id (NCT number) | - |
| WHO universal trial number (UTN) | - |

Notes:

**Sponsors**

| | |
|---|---|
| Sponsor organisation name | Royal Liverpool & Broadgreen University Hospitals NHS Trust |
| Sponsor organisation address | Prescot St, Liverpool, United Kingdom, L7 8XP |
| Public contact | Research Governance Manager, RD&I Royal Liverpool Hospital Prescot St<br>Liverpool, 044 151 706 3702, RGT@rlbuht.nhs.uk |
| Scientific contact | Research Governance Manager, RD&I Royal Liverpool Hospital Prescot St<br>Liverpool, 044 151 706 3702, RGT@rlbuht.nhs.uk |

Notes:

**Paediatric regulatory details**

| | |
|---|---|
| Is trial part of an agreed paediatric investigation plan (PIP) | No |
| Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial? | No |
| Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial? | No |

Notes:

## Results analysis stage

| | |
|---|---|
| Analysis stage | Final |
| Date of interim/final analysis | 12 September 2013 |
| Is this the analysis of the primary completion data? | Yes |
| Primary completion date | 12 September 2013 |
| Global end of trial reached? | Yes |
| Global end of trial date | 12 September 2013 |
| Was the trial ended prematurely? | No |

Notes:

## General information about the trial

Main objective of the trial:

Using plerixafor plus granulocyte-colony stimulating factor (G-CSF), is the yield of stem (CD34+) cells at least as good as can be obtained with conventional chemotherapy plus G-CSF?, and can this be accomplished in the same or fewer stem cell collections (known as aphereses)?

Stated more formally, the primary study endpoint is a composite of BOTH an adequate stem cell harvest (at least 4 x 10 E6 CD34+ cells per kg body weight in no more than 2 aphereses) AND a neutrophil count that never falls below 1.0 x 10 E9 / Litre in the 3 weeks following initiation of mobilisation.

Protection of trial subjects:

This study was a reduction in SoC medication. Patients were reviewed regularly for remission.

Background therapy:

The daily dose of G-CSF is the same as used at the Royal Liverpool University Hospital (RLUH) for some years in chemotherapy containing stem cell mobilisation; 300 ug for patients weighing 60kg or less; 480 ug for patients over 60 kg but under 96 kg, and 600 ug for patients weighing 96 kg or more. This equates to a dose of at least 5 ug/kg (maximum 8 mg/kg) for all patients up to 120 kg. The daily dose of plerixafor is 240 ug/kg if the creatinine clearance is equal to or greater than 50mls/minute; if less than this then the dose is 160 ug/kg daily.

Evidence for comparator:

Comparison will be made to an immediately preceding cohort of 200 eligible patients who were mobilised with chemotherapy plus G-CSF. This comparator population is suitable, since the case mix, G-CSF dose for harvesting and the transplant conditioning have not changed during the past few years nor are seen as likely to change during the course of the study

| | |
|---|---|
| Actual start date of recruitment | 01 May 2010 |
| Long term follow-up planned | No |
| Independent data monitoring committee (IDMC) involvement? | No |

Notes:

## Population of trial subjects

### Subjects enrolled per country

| | |
|---|---|
| Country: Number of subjects enrolled | United Kingdom: 249 |
| Worldwide total number of subjects | 249 |
| EEA total number of subjects | 249 |

Notes:

### Subjects enrolled per age group

| | |
|---|---|
| In utero | 0 |
| Preterm newborn - gestational age < 37 | 0 |

| wk | |
|---|---|
| Newborns (0-27 days) | 0 |
| Infants and toddlers (28 days-23 months) | 0 |
| Children (2-11 years) | 0 |
| Adolescents (12-17 years) | 0 |
| Adults (18-64 years) | 240 |
| From 65 to 84 years | 9 |
| 85 years and over | 0 |

## Subject disposition

### Recruitment

Recruitment details:

patients recruited between 01/05/2010-01/05/2012
plerixafor plus G-CSF as a mobilisation regime in 100 consecutive myeloma and lymphoma patients undergoing stem cell harvesting. Comparison will be made to an immediately preceding consecutive cohort of 200 myeloma and lymphoma patients mobilised with chemotherapy plus G-CSF.

### Pre-assignment

Screening details:

101 participants, 98 completed, 1 screen failure and 2 not made to mobilisation

### Period 1

| | |
|---|---|
| Period 1 title | overall trial (overall period) |
| Is this the baseline period? | Yes |
| Allocation method | Non-randomised - controlled |
| Blinding used | Not blinded |

### Arms

| | |
|---|---|
| Are arms mutually exclusive? | Yes |
| **Arm title** | interventional arm |

Arm description:

100 patients treated with plerixafor and G-CSF

| | |
|---|---|
| Arm type | Experimental |
| Investigational medicinal product name | Plerixafor |
| Investigational medicinal product code | L 03 AX 16 |
| Other name | |
| Pharmaceutical forms | Solution for injection/infusion |
| Routes of administration | Intravenous use |

Dosage and administration details:

The dose of plerixafor is 240 ug/kg daily if the creatinine clearance is equal to or greater than 50mls/minute; if less than this then the dose is 160 ug/kg daily.

| | |
|---|---|
| **Arm title** | retrospective standard of care |

Arm description:

patients treated with standard of care chemotherapy G-CSF

| | |
|---|---|
| Arm type | No intervention |

No investigational medicinal product assigned in this arm

| **Number of subjects in period 1** | interventional arm | retrospective standard of care |
|---|---|---|
| Started | 98 | 151 |
| Completed | 98 | 151 |

## Baseline characteristics

| Reporting groups | |
|---|---|
| Reporting group title | overall trial |
| Reporting group description: | |
| interventional | |

| Reporting group values | overall trial | Total | |
|---|---|---|---|
| Number of subjects | 249 | 249 | |
| Age categorical | | | |
| 98 interventional and 151 retrospective comparrators | | | |
| Units: Subjects | | | |
| In utero | 0 | 0 | |
| Preterm newborn infants (gestational age < 37 wks) | 0 | 0 | |
| Newborns (0-27 days) | 0 | 0 | |
| Infants and toddlers (28 days-23 months) | 0 | 0 | |
| Children (2-11 years) | 0 | 0 | |
| Adolescents (12-17 years) | 0 | 0 | |
| Adults (18-64 years) | 240 | 240 | |
| From 65-84 years | 9 | 9 | |
| 85 years and over | 0 | 0 | |
| Age continuous | | | |
| Units: years | | | |
| median | 56 | | |
| full range (min-max) | 20 to 68 | - | |
| Gender categorical | | | |
| Units: Subjects | | | |
| Female | 97 | 97 | |
| Male | 152 | 152 | |

| Subject analysis sets | |
|---|---|
| Subject analysis set title | Full set |
| Subject analysis set type | Per protocol |
| Subject analysis set description: | |
| achieved primary endpoint | |

| Reporting group values | Full set | | |
|---|---|---|---|
| Number of subjects | 249 | | |
| Age categorical | | | |
| 98 interventional and 151 retrospective comparrators | | | |
| Units: Subjects | | | |
| In utero | | | |
| Preterm newborn infants (gestational age < 37 wks) | | | |
| Newborns (0-27 days) | | | |
| Infants and toddlers (28 days-23 months) | | | |

| | | | |
|---|---|---|---|
| Children (2-11 years)<br>Adolescents (12-17 years)<br>Adults (18-64 years)<br>From 65-84 years<br>85 years and over | | | |
| Age continuous<br>Units: years<br>median<br>full range (min-max) | | | |
| Gender categorical<br>Units: Subjects | | | |
| Female | 151 | | |
| Male | 152 | | |

## End points

### End points reporting groups

| | |
|---|---|
| Reporting group title | interventional arm |
| Reporting group description: | |
| 100 patients treated with plerixafor and G-CSF | |
| Reporting group title | retrospective standard of care |
| Reporting group description: | |
| patients treated with standard of care chemotherapy G-CSF | |
| Subject analysis set title | Full set |
| Subject analysis set type | Per protocol |
| Subject analysis set description: | |
| achieved primary endpoint | |

### Primary: composite primary end point

| | |
|---|---|
| End point title | composite primary end point |
| End point description: | |
| composite of BOTH an adequate stem cell harvest (at least 4 x 106 CD34+ cells per kg body weight in no more than 2 aphereses) AND a neutrophil count that never falls below 1.0 x 109 / Litre in the 3 weeks following initiation of mobilisation. | |
| End point type | Primary |
| End point timeframe: | |
| during 3 weeks post mobilisation | |

| End point values | interventional arm | retrospective standard of care | Full set | |
|---|---|---|---|---|
| Subject group type | Reporting group | Reporting group | Subject analysis set | |
| Number of subjects analysed | 98 | 151 | 249 | |
| Units: cells | | | | |
| number (not applicable) | | | | |
| adequate stem cell harvest | 70 | 111 | 181 | |
| neutrophil count does not fall below 1.0x109/litre | 98 | 84 | 182 | |

### Statistical analyses

| | |
|---|---|
| **Statistical analysis title** | descriptive |
| Statistical analysis description: | |
| descriptive stats | |
| Comparison groups | retrospective standard of care v interventional arm |

| | |
|---|---|
| Number of subjects included in analysis | 249 |
| Analysis specification | Pre-specified |
| Analysis type | other[1] |
| P-value | > 0.05 [2] |
| Method | Wilcoxon (Mann-Whitney) |

Notes:

[1] - descriptive sats

[2] - descriptive stats

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

3 months post mobilisation

Adverse event reporting additional description:

assessed daily during in patient phase then at 3 month follow-up or unscheduled admission

| | |
|---|---|
| Assessment type | Systematic |

### Dictionary used

| | |
|---|---|
| Dictionary name | MedDRA |
| Dictionary version | 16.1 |

### Reporting groups

| | |
|---|---|
| Reporting group title | intervention |

Reporting group description: -

| | |
|---|---|
| Reporting group title | retrospective standard of care |

Reporting group description: -

| Serious adverse events | intervention | retrospective standard of care | |
|---|---|---|---|
| Total subjects affected by serious adverse events | | | |
| subjects affected / exposed | 1 / 98 (1.02%) | 18 / 151 (11.92%) | |
| number of deaths (all causes) | 1 | 3 | |
| number of deaths resulting from adverse events | 1 | 3 | |
| Blood and lymphatic system disorders | | | |
| Neutropenic sepsis | | | |
| subjects affected / exposed | 0 / 98 (0.00%) | 10 / 151 (6.62%) | |
| occurrences causally related to treatment / all | 0 / 0 | 10 / 10 | |
| deaths causally related to treatment / all | 0 / 0 | 0 / 0 | |
| Vena cava embolism | | | |
| subjects affected / exposed | 0 / 98 (0.00%) | 1 / 151 (0.66%) | |
| occurrences causally related to treatment / all | 0 / 0 | 1 / 1 | |
| deaths causally related to treatment / all | 0 / 0 | 0 / 0 | |
| Haemorrhage | Additional description: femoral vein | | |
| subjects affected / exposed | 0 / 98 (0.00%) | 1 / 151 (0.66%) | |
| occurrences causally related to treatment / all | 0 / 0 | 0 / 1 | |
| deaths causally related to treatment / all | 0 / 0 | 0 / 0 | |
| Lymphoma | Additional description: progressive lymphoma - disease progression not related to imp | | |

| | | | |
|---|---|---|---|
| subjects affected / exposed | 1 / 98 (1.02%) | 3 / 151 (1.99%) | |
| occurrences causally related to treatment / all | 0 / 1 | 0 / 3 | |
| deaths causally related to treatment / all | 1 / 1 | 3 / 3 | |
| Infections and infestations | | | |
| Sepsis | Additional description: non neutropenic | | |
| subjects affected / exposed | 0 / 98 (0.00%) | 3 / 151 (1.99%) | |
| occurrences causally related to treatment / all | 0 / 0 | 3 / 3 | |
| deaths causally related to treatment / all | 0 / 0 | 0 / 0 | |

Frequency threshold for reporting non-serious adverse events: 0 %

| **Non-serious adverse events** | intervention | retrospective standard of care | |
|---|---|---|---|
| Total subjects affected by non-serious adverse events | | | |
| subjects affected / exposed | 11 / 98 (11.22%) | 11 / 151 (7.28%) | |
| Gastrointestinal disorders | | | |
| Gastrointestinal disorder | Additional description: These are associated with citrate anticoagulant used in Leukopharesis | | |
| subjects affected / exposed | 11 / 98 (11.22%) | 11 / 151 (7.28%) | |
| occurrences (all) | 11 | 11 | |

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

| Date | Amendment |
|---|---|
| 17 November 2011 | increase in sample size |

Notes:

### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

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|---|
| Assessment of non serious adverse events is complicated by the fact that many patients undergoing leukapheresis report symptoms attributable to the toxicity of the citrate anticoagulant 11 had gastro intestinal symptoms, headache and insomnia |

Notes: