HSCT MANAGEMENT

Know more.
Decide with confidence.
Act faster.

Beyond the stem cell count: Managing pre- and post-apheresis challenges of haematopoietic stem cell transplantation

## Challenges during haematopoietic stem cell transplantation (HSCT)

HSCT is a complex treatment that involves several steps. In each phase, patients and treating physicians may be faced with certain challenges, raising the following clinical questions:

- 'Does this patient have an infection?'
- 'Does this patient require a platelet transfusion?'
- 'Was the stem cell transplantation successful?'
- 'When will this patient be out of the risk group for bleeding and infections?'

There is an integrated approach for optimising stem cell apheresis and the monitoring of patients, including the phases before and after apheresis. All the necessary information can be obtained from a simple, routine laboratory blood test.
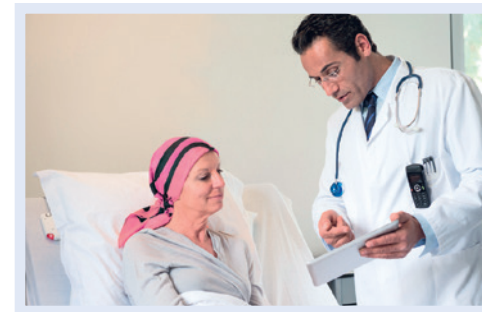
55-year old female patient diagnosed with primary mediastinal large diffuse B cell Non-Hodgkin's lymphoma. On day twelve after the transplant, the patient's condition is conspicuous with fever, suspected infection and mouth sores. The daily records of white blood cells, red blood cells and platelets reveal moderate pancytopenia and show no significant shift yet. Is the patient already in the engraftment phase?
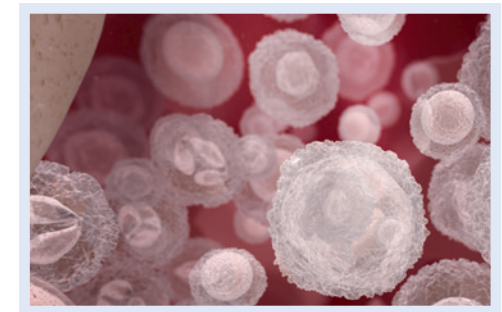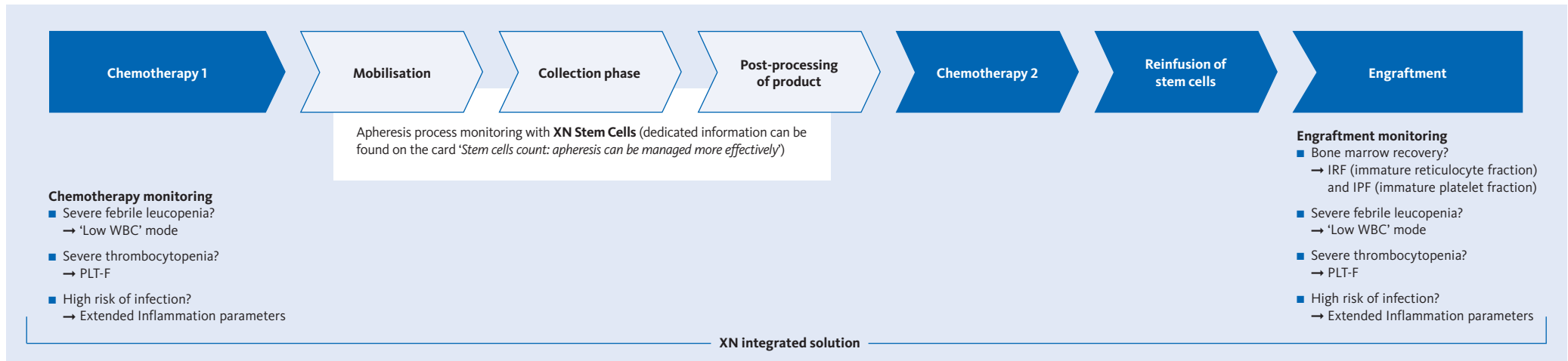

Your benefits – better monitoring of your patients throughout their therapy

- Detect and predict the course of infections early on with a particularly precise white blood cell count and differential, plus a combination of innovative parameters that further characterise inflammations.

- Obtain more support for your clinical decision of a platelet transfusion with a highly accurate platelet count and information on immature platelets.

- Predict successful engraftment reliably by using both immature platelet and reticulocyte information.

- All parameters are readily available from a routine blood test in your laboratory.

| Chemotherapy 1 | Mobilisation | Collection phase | Post-processing of product | Chemotherapy 2 | Reinfusion of stem cells | Engraftment |

Apheresis process monitoring with **XN Stem Cells** (dedicated information can be found on the card '*Stem cells count: apheresis can be managed more effectively*')

Chemotherapy monitoring
- Severe febrile leucopenia?
  → 'Low WBC' mode
- Severe thrombocytopenia?
  → PLT-F
- High risk of infection?
  → Extended Inflammation parameters

Engraftment monitoring
- Bone marrow recovery?
  → IRF (immature reticulocyte fraction) and IPF (immature platelet fraction)
- Severe febrile leucopenia?
  → 'Low WBC' mode
- Severe thrombocytopenia?
  → PLT-F
- High risk of infection?
  → Extended Inflammation parameters

XN integrated solution

HSCT and its challenges at various stages. The XN-Series haematology analysers offer an integrated solution for both stem cell apheresis and pre- and post-apheresis monitoring of patients.

Infection monitoring
- You can obtain reliable white blood cell values even with severely leucopenic samples from your laboratory ('Low WBC' mode).
- A group of novel haematological inflammation parameters that quantify or characterise activated neutrophil and lymphocyte populations (IG, NEUT-RI, NEUT-GI, RE-LYMP, AS-LYMP) help you to assess your patients' condition.

Thrombocytopenia monitoring
We help you obtain the most accurate platelet count, even at concentrations as low as the transfusion threshold, by combining different platelet count technologies (PLT-F) inside the XN haematology analyser. So you can decide and act with confidence.

Engraftment monitoring
Certain parameters obtained from a blood test have been demonstrated* to be valuable predictors of stem cell engraftment:
- IPF (reflects platelets newly released from the bone marrow) is a marker of successful engraftment of the megakaryocyte lineage and a predictor of platelet recovery.
- IRF (reflects highly immature reticulocytes newly released from the bone marrow) is an indicator of erythropoiesis, and correlates well with the engraftment of neutrophils.*

* Benefit from more background information in our freely accessible white papers: **www.sysmex-europe.com/whitepapers**