

Use of the haemopoietic progenitor cell count of the Sysmex SE-9500 to refine apheresis timing of peripheral blood stem cells

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The Sysmex SE-9500 automated cell counter provides an estimate of immature cells referred to as 'haemopoietic progenitor cells' (HPC). The aim of this study was to relate the HPC count to CD34+ cell levels in mobilized peripheral blood and to determine whether the HPC count was valuable in predicting apheresis yields of CD34+ cells. Studies were performed on 114 samples from 67 patients undergoing progenitor cell mobilization. HPC cells were undetectable in the steady state. On the day of apheresis the HPC and CD34 counts were weakly correlated, with the median HPC count being 2.3-fold greater than the CD34+ cell count. The HPC count did not include the CD34+ cells as immunomagnetic depletion of CD34+ cells did not significantly reduce the HPC count. CD34+ cell counts predicted for apheresis yield ($r = 0.773$) on that day as did the HPC count ($r = 0.623$). The optimal strategy to prevent unnecessary harvesting while minimizing the risk of missing an adequate harvest, and minimizing laboratory investigations, was to screen all samples for HPC and limit CD34+ cell measurements to those with an HPC count $<10 \times 10^6/l$ (19/114 samples). If the CD34+ cell count was also $<10 \times 10^6/l$ then harvesting should not be carried out.

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