In corso di stampa:

**Accurate counting of white blood cells in samples obtained from sources of hematopoietic stem/progenitor cells: the performances of the ABX Pentra DX 120 analyzer on mobilized blood/leukapheresis products and cord blood working on dedicated analytical profiles.**

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**Short title:** WBC counting and differential in sources of hematopoietic stem/progenitor cells

**Abstract**

**Background**
Accurate white blood cell counting (WBC) and differential by blood analyzers could allow a more informative characterization of sources of human hematopoietic stem/progenitor cells (HS/PC). However, reliable counting by a blood cell analyzer in this setting is a major challenge due to qualitative abnormalities of blood cells.

**Study design and methods**
We evaluated the performances of the analyzer Pentra DX 120 by Horiba ABX working on dedicated cell gating profiles in WBC counting and three-part differential in samples coming from donors' mobilized blood (MB), leukapheresis products (LP) and cord blood (CB). The results of the analyzer were compared to counts obtained by flow cytometry and manual counts, the latter performed for reference system validation and in the case of discrepant results between study and reference counts.

**Results**
Pentra DX 120 generated highly correlated counts (R > 0.91 in all cases) to those obtained by flow cytometry in all samples (MB,LP,CB) with high degree of count accuracy in most cases and referred to WBC absolute count and differential including lymphocytes (LYM)%; monocytes (MON)% and polymorphonuclear leukocytes (PMN)%. Accuracy, judged by the difference between study and reference counts and expressed as percentage of reference count, ranged from 0.8 to 8.6 % and sporadic loss of accuracy occurred for MON % only in no more than 10 % of CB samples.and CB analysis and allowed a better characterization of HS/PC donors' hematologic

**Conclusion**
The ABX Pentra DX 120 provided accurate WBC count and differential during MB, LP status and graft composition.