CS11.

IS IT WORTH DOING A BLOOD COUNT IN A NEONATE ?

S.B.A. DISSANAYAKE

Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka

Neonatal infections are major cause of neonatal morbidity and mortality. Unfortunately, microbiological investigations are costly in time and resources. A combination of antibiotics may have to be utilized in this situation with only a presumptive diagnosis of infection. These antibiotics may be potentially dangerous causing ototoxicity and nephrotoxicity. The delay in microbiological confirmation is unacceptable in neonatal infections. The cheaper alternatives of blood film examination and automated blood count are probably appropriate in Sri Lanka.

The purpose of this study to examine 8 automated parameters of cord blood using Symex 820 Haemoanalyzer in combination with the examination of blood film to detect neonatal infection, early. In addition the leukocyte count, the " band " count, differential count and nucleated red cell count were utilized to derive at a diagnosis of infection making altogether 12 parameters of study. At no stage newborn baby's blood was examined as this was considered invasive examination and ethically unacceptable as a study design in a healthy population of babies. Instead placental blood was examined as an alternative at the time of birth.

This presentation is a critical evaluation 100 random samples of placental blood studied during the period of March, 1999 to October, 1999. Normal values and normal ranges were developed. In this paper the band count, the myelocyte count, the neutrophil count, and the nucleated red cell count are analyzed in detail.

Total uncorrected white cell count (not corrected for nucleated red cells) over 25,000mm^3 the corrected neutrophil count over 12,000mm^3 the band count over 2000mm^3 the myelocyte count over 1000mm^3 and the nucleated red cell count over 10,000mm^3 are considered to be helpful in diagnosing clinical and subclinical infection of the newborn. All these values are two standard deviations above the normal ranges developed in this study. The predictive value is increased considerably when these parameters are analyzed and evaluated in combination rather than in isolation. A few cases are illustrated where clinical diagnosis was assisted by this study.

In conclusion the leukocyte count, the " band " count, the differential count, the nucleated red cell count and the examination of the blood film should be judiciously utilized to derive at a diagnosis of a clinical problem. These parameters identify not only infection but also other stressful conditions. It is imperative that one should examine the blood film to identify the different type of cells. The automated counters often count nucleated cell as variant of lymphocytes. However the more advanced counters can identify these cells but the "human eye" has no substitute in this regard. Similar studies were done in mid seventies but with the advent of autoanalyzers the usefulness of blood film is neglected. It is expected that individual Neonatal Units could adopt their own protocol regarding the utilization of the various parameters described above especially the blood film.