Letters to the Editor

Quality Control for Coulter Counter Models

In this laboratory, we have been using a method of quality control for our Coulter Model S which is not related to commercial whole blood standard preparations. The method we use involves calibration of the haemoglobin level against three commercial cyanmethaemoglobin standards conforming to the ICSH international reference standard.

We have been concerned to find that, in the last six months, our haemoglobin results on the DHSS and BCSH haematology quality assessment trial and on the West Midland Regional Quality Control Scheme (Haematology) have averaged 0.5 g/dl higher than laboratories using Coulter 4C to calibrate their machines. This discrepancy is also reflected in the mean haemoglobin level for laboratories using the Coulter Model S and 4C as quality control compared with laboratories using other methods (Coulter S not controlled by 4C and semiautomated and manual methods) (figure).

We have been unable to explain this discrepancy and would be interested to know whether other laboratories have had the same experience.

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COMMENT

In the national quality control trials, it has been found consistently that participants using Coulter S produce a lower mean value for haemoglobin than with other systems and, although the difference is in the order of 0.2-0.3 g/dl, 0.5 g/dl is just within 2 SD. Although there is no definite information, it seems likely that this discrepancy is due to the use of 4C as a calibrating material by the majority of Coulter S users, but not by others. A trial is now planned which will include calibrated whole blood, a cyanmethaemoglobin preparation, and the ICSH International Reference Preparation in order to try to identify the cause of the discrepancy.

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T cells in chronic lymphatic leukaemia

An absolute increase in the number of T circulating lymphocytes in patients with chronic lymphatic leukaemia of B type has been found by several authors (Catzovsky et al., 1974; Lang et al., 1975; Macavei and Halmos, 1975).

Using the E-rosetting method (Stjernswärd et al., 1972) and the total and differential white blood cell count, we determined the absolute number of T cells in the circulating blood of 15 patients with chronic lymphatic leukaemia. The average that we obtained is in agreement with that of the above authors (4021 ± 583/mm³ with respect to our normal standard: 1278 ± 372/mm³).

In a previous report (Semenzato et al., 1976) we demonstrated, using the one-way mixed lymphocyte culture technique, a reactivity of the T cells against the autologous B cells which were altered due to chronic lymphatic leukaemia. In order to illustrate the effect of chronic lymphatic leukaemia over a period of time we divided the patients into two groups: (1) subjects (7) studied at the moment of diagnosis, and (2) subjects (8) in whom the disease had been noted for more than two years.

It is interesting to note that in the subjects of the first group, the average number of T cells was remarkably less than that of the second group (2698 ± 237/mm³ vs. 5580 ± 797/mm³; p < 0.001 (Student's t test)). None of the patients was under treatment when the blood was drawn.

As we have suggested (Semenzato et al., 1976), in chronic lymphatic leukaemia the T lymphocytes, which are still normal (Wybran et al., 1973), respond with an increase in their absolute number due to their acquired sensitivity to the neoplastic B cells. This has also been reported in other diseases in both clinical (Kaur et al., 1974) and experimental (Konda et al., 1973) situations. It is clearly shown in the patients of group 2 in whom the longer duration of the disease caused the B cells to sensitize more T cells.

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