The melatonin concentration in saliva probably represents the "free" non-plasma-protein-bound hormone fraction of physiological importance (9), and its high and stable correlation with the concentration in plasma indicates this procedure to be a valuable index of the circulating hormone. Salivary melatonin assay may therefore be of direct use in basic and clinical investigations of human pineal-gland function in studies that preclude the use of invasive techniques—i.e., long-term longitudinal studies based in the community. However, specific guidelines must be followed if salivary samples are to be considered a valid index of the hormone concentration in plasma.

These guidelines are currently undergoing definition based on experimental evidence and experience, but certainly dictate that the experimental subject should not brush the teeth but rather should clean the mouth by a 5-min sustained and vigorous rinsing with water at least 15 min before sample collection. Thereafter, no food or fluid intake is permitted until the sample is collected.

With reference to the data reported here, and in agreement with independent studies (10, 11), we conclude that, if specific guidelines are followed for collecting the sample, salivary melatonin assay can provide a reliable and convenient index of pineal-gland function in health and disease.

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References

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Disturbance of the Determination of Hemoglobin Concentration in Patients with High Leukocyte Counts

To the Editor:

It is well known that determination of total hemoglobin concentration (CHb) by the internationally accepted standard HiCN method (1) may give erroneous results for blood samples from patients with high leukocyte counts, unless a special reagent solu-

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tion is used (2). However, routine determinations are performed daily on blood samples from such patients. This may result in misinterpretations as to the diagnosis and treatment. For instance, the decision as to whether or not anemia will be treated by transfusion of packed erythrocytes strongly depends on the measured value of chb. The erroneous results are caused by turbidity of the diluted HiCN solutions, which can be checked by measuring the absorbance at 750 nm. Nevertheless, in daily practice, the check for turbidity is rarely carried out.

To illustrate the consequences, we used samples from two patients (1 and 2), both with leukocyte counts exceeding 300 - 10⁹/L, to compare the standard HiCN method (1) with a modified HiCN method in which a drop of 250 mL/L ammonia solution is added to the diluted HiCN solution to decrease turbidity (2), with a two-wavelength hemoglobinometer (3, 4) (Hemocue system; AB LEO Diagnostics, Helsingborg, Sweden), and with a six-wavelength photometer (5) (Hemoximeter OSM3; Radiometer, Copenhagen, Denmark). The results: