Letters to the Editor

Rapid Fluctuations in Glycosylated Haemoglobin Concentration

Sir,

Recently Ditzel et al. [1] commented in this journal about the publication of Bolli et al. [2], which dealt with the rapid changes of Hb A₁-concentration as related to the blood glucose level. The formation of first a labile compound and then a stabile compound of glucose with the haemoglobin molecule was pointed out. It was further pointed out that the column chromatographic separation technique measures both the labile and stable forms, if blood samples are not first dialysed.

On the whole these statements are to be approved. The conclusion, that the determination of glycosylated haemoglobin concentration is worthless by the microcolumn technique without previous dialysis of the samples, is in our experience partly justified. With the application of our own microcolumn method [3] we have noticed oscillations of the Hb A₁-concentration of 1.0 to 1.5% depending on the actual blood glucose concentration. But these oscillations occurred only in the Hb A₁-concentration range from 14 to 15%. At Hb A₁-concentration between 9 and 10% the differences in relation to the actual blood glucose concentration were only 0.1 to 0.3% and were thus only slightly above the range of the error of the method. From the clinical standpoint, greater oscillations of the Hb A₁-concentration in the range from 14 to 15% are of no importance, because patients with such high values require attention regardless of minor variations.

In addition, the labile part of glycohaemoglobin can be eliminated not only by dialysis, but also by incubation of the blood samples in an excess of 0.154 mol/l saline at 37 °C over 6 hours [4, 5]. Furthermore, it is possible to split the labile aldime by lowering the pH to 5 and incubating for 1 hour [6, 7]. These methods are less complicated than dialysis.

Therefore we conclude that the Hb A₁-determination by microcolumn method cannot be stamped as useless. In certain circumstances it enables the analysis of a large number of blood samples in reasonable time and is ideal for use under routine conditions.

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References

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