



Figure 6: Comparison of measurement of methaemoglobin By SLS-Hb method and HiCN method

Discussion

The ideal method for haemoglobinometry should meet the following requirements:

1. Directly referable to a stable reference standard.
2. Immediate reaction between reagent and blood for total conversion of haemoglobin.
3. Perfect correlation between absorbance at an appropriate wavelength and haemoglobin concentration.
4. Stability of converted haemoglobin for at least several hours.
5. All haemoglobin derivatives are converted.

Reagent is non-toxic and does not affect the apparatus in which it is used in the ICSH recommended haemiglobincyanide (HiCN) method haemoglobin is converted by means of a ferricyanide reagent based on Drabkin's reagent^[13]. This method, which has been universally accepted, meets the most important criteria of being linked with a stable standard, the international haemoglobincyanide reference standard^[14]. This standard has a stability of at least six years.

The disadvantage of the HiCN method is that the reagent contains cyanide,

and although this is used in a harmless amount for each assay, there is potential toxic risk where large volumes are discharged as waste: in some countries, this is regarded as a health hazard, which must be controlled in accordance with complex health and safety regulations. It is thus desirable to use a non-toxic alternative in routine practice^[13].

Several alternatives are available^[12], especially oxyhaemoglobin (HbO₂) using ammoniated water as reagent^[15], but the product is unstable, and the method is unreliable in the presence of carboxyhemoglobin, methenoglobin, or sulfhemoglobin^[16]. Nor do any other established methods meet the requirements set out above. It has been suggested that a better method might be to convert haemoglobin to a sulfate derivative by means of sodium Lauryl sulfate^[11], this is a non-toxic substance^[13]. It has now been developed as a commercial reagent by to a Medical Electronics for use in their automated haematology analysers and a preliminary report on its usefulness has been published^[17]. This present study was undertaken to assess its use for haemoglobinometry in general.

The conversion time was extremely rapid less than 15 seconds. Lewis (1991) found the conversion time was less than 13