Assessment and Authentication of Promea Therapeutic’s Indigenous Digital Hemoglobin Analyzer (Dr. Protech H+)

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INTRODUCTION

Hemoglobin screening is among the first and foremost tests done for patients/blood donors’ selection with the main intention of preventing blood collection from an anemic donor. Blood donors represent the normal population hence hemoglobin estimation in blood donor also analyze the prevalence of anemia in the study population. It is therefore essential that there should be an accurate and reliable method for hemoglobin determination. According to the Indian Drugs and Cosmetics Act, 1940 for blood donation, the minimum acceptable hemoglobin (Hb) is 12.5 g/dl or hematocrit (Hct) of 38% for both males and females. Single donor platelet aphaeresis is one of the specialized procedure in which also the selection criteria mandate hemoglobin and usually all the blood bank follows the prior testing of TTI hence sample collection done in EDTA tube also and CBC testing for all donors done. A number of manufacturers provides digital hemoglobin metre which is one of the most user-friendly devices for blood bank staff which provide sophistication also. Here in this study we have evaluated one of such devices Promea Therapeutics’s Digital Hemoglobin Analyzer (Dr. Protech H+) & Cuvettes and compare it to hematology cell counter readings.

MATERIALS AND METHODS

A study of 350 Blood Samples was conducted to evaluate a digital Promea Therapeutics’s Digital Hemoglobin Analyzer (Dr. Protech H+) was done at DKM Diagnostic Centre, Jaipur from November 2022 to December 2022 and data were compared to Sysmex KX 21 hematology cell counter which is one of the most accurate methods for hemoglobin estimation. Out of 350 donors 247 were male and 103 were female. Mean value of Promea’s Digital Hemoglobin Analyzer (Dr. Protech H+) (mean 14.0 g/dl) was slightly lower by 0.2 compared to reference (mean 14.2 g/dl) but not statistically significant. In comparison to cell counter Promea’s Digital Hemoglobin Analyzer (Dr. Protech H+) gives comparable results to cell counter and hence proved to be reliable, easy to operate and cost effective.

Keywords: Haemoglobin, DIGITAL Hemoglobin Meter, Promea’s Digital Hemoglobin Analyzer
Prometheus’s Digital Hemoglobin Analyzer (Dr. Protech H+) has been evaluated for the first time so here we have to refer similar studies on other devices. Prometheus’s Digital Hemoglobin Analyzer (Dr. Protech H+) is handy, lightweight, very easy to carry, working on absorbance photometric principle. Its battery as well as direct power operated. Measuring range is 0-25g/DL, can give reading within 10 seconds, less than 10 micro litre sample size needed. The reference method we used is also standard for many studies and time tested based on the same principle of photometric absorbance that KX 21 (Sysmex). Gómez-Simón et al evaluated the performance of three PHs (HemoCue, STAT Site MHgb and CompoLab HB system) and attributed the inaccuracy in their performance mainly to the use of capillary blood. Tondon et al also evaluated another device hemocue and concluded that such devices can be used to confirm donor deferral in economically restricted country like India. All these studies describe pros and cons of different methods.

CONCLUSION

Prometheus’s Digital Hemoglobin Analyzer (Dr. Protech H+) gives comparable results to cell counter in hospital, laboratory and Blood Bank Settings.

REFERENCES


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