

Validation and Effect on Diabetes Control of Glycated Haemoglobin (HbA1c) Point-of-Care Testing

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Diabetes mellitus (DM) and its complications pose a major global threat to both patients' and countries alike. Strategies to improve DM control are highly sought after, especially in developing world countries which bear the brunt of the diabetes pandemic. Point of care testing (POCT) for glycosylated haemoglobin (HbA1c) offers one such strategy for clinicians to make immediate therapeutic decisions.

In this study every other patient attending the Edendale hospital diabetes clinic located in Pietermaritzburg, KwaZulu-Natal, South Africa between 1 June 2017 and 31 August 2017 underwent consenting process. They made up the POCT group while the remainder made up the control laboratory group. The POCT group had their HbA1c done at their clinic visit and had their treatment adjusted immediately at the clinic visit while the laboratory group received standard treatment. Both groups of patients were reviewed at 3 months to determine differences in diabetes control between them.

We analysed data from a total of 266 patients (131 in the control group versus 135 in POCT group). Both groups of patients were evenly matched in terms of demographic and clinical variables. Excellent correlation was demonstrated between the POCT and laboratory HbA1c ($r = 0.995$; $p < 0.001$). The POCT group demonstrated a statistical improvement in mean HbA1c between baseline and 3 months (9.61 ± 2.46 vs. 8.98 ± 2.15 ; $p < 0.043$). No such significant improvement was found in the laboratory group (9.58 ± 2.59 vs. 9.43 ± 2.15 ; $p = 0.823$).

Conclusion

The HbA1c POCT showed good correlation with laboratory methods with regards to glycaemia and pricing. Patients who had POCT HbA1c done at clinic visit achieved significant improvement in glycaemia.

HbA1c POCT could prove to be an invaluable tool in our search for optimal diabetes control.