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※ Presenting Author's Information

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※ Abstract Form

Title:

Measurement of HbA1c using an automated biochemical analyzer connecting to a laboratory conveyance line – evaluation of Norudia(R)N HbA1c using BM9130 -

Authors:

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Introduction:

Hemoglobin A1c (HbA1c) is one of the useful clinical markers not only in diagnosing diabetes mellitus but also in evaluating blood glucose levels in the patients. An HPLC method has been used to measure HbA1C, but the immunological or enzymatic methods for HbA1c have been developed in recent. In this study, we evaluated an enzymatic agent for HbA1c (Norudia(R)N HbA1c Sekisui Medical Co. Ltd, Japan, Method S) using an automated biochemical analyzer (JCA-BM9130, Japan Electron Optics Laboratory, Japan), having an auto-hemolysis function necessary toHbA1c measurement. We also evaluated if the analyzer which was connected to a laboratory conveyance line (CLINILOG Ver3.5, A&T Corp., Japan) was useful in promoting efficacy on our routine works.

Methods:

HbA1c was measured with another enzymatic agent (CinQ HbA1c(R), LSI Medience, Japan, Method L) as well as with Method S using BM9130, and compared with HbA1c measured by HPLC (HLC723G7, Arkray Inc. Japan, Method H). Relations among each methods, influence of co-existing substances, and accuracy (measurement of 5 doses and 5 times using JCCRM411-3) ware evaluated.

Results:

1) Regression analysis demonstrated that y (Method S) = 0.95x (Method H) + 0.28 with r = 0.98 and y (Method S) = 0.92x (Method L) + 0.55 with r = 0.98.

2) HbA1c values measured by each methods were not influenced by co-existing substances, even if they were added at maximum doses (bilirubin F at 20 mg/dl, bilirubin C at 20 mg/dl, hemoglobin at 500 mg/dl, turbidity at 3,000 units, and ascorbic acid at 50 mg/dl.

3) An accuracy test demonstrated a relation of y (Method S) =1.05 x (JCCRM411-3) - 0.39 with r = 0.99.

4) Connection of BM9130 to CLINILOG brought not only an improvement in turnaround time (TAT) until test result reports, but also a replacement of the staff who was in charge of off-line measurement of HbA1c by HPLC to another section.

Conclusion:

HbA1c could be enzymatically measured by Norudia(R)N HbA1c using BM9130 having an auto-hemolysis function, resulting in acceptable relations with HPLC method. This system was suggested to contribute to shorten TAT and also to promote laboratory efficiencies.

※ Questions or comments (if necessary):