

Effect of Different Anticoagulants on HbA1c Estimation and its Stability

Sir,

Glycated hemoglobin/HbA1c is always considered as a stable indicator of glycaemia for the preceding three months.^[1] Its potential utility in diabetic care was first reported in 1985 WHO report, and by 2010 all the major expert committee and association across the globe including the ADA has recommended HbA1c for the diagnosis of Type 2 DM, besides its role in prognosis.^[2] So, the importance of HbA1c estimation in diabetes has increased manifold in recent years.

Most of the commercial kits for HbA1c estimation requires sample to be collected in EDTA anticoagulant. This requires additional sample collection for the patient. So, we estimated HbA1c in sample collected in K_3 EDTA, Na-citrate, Na-heparin and Na-fluoride/ Na_2 EDTA vials separately and then to see for any variation. All the vials used are of BD (Becton, Dickinson and Company) Vacutainer manufactured by Becton, Dickinson India. HbA1c is estimated after 2-3 hours of blood collection by cation exchange HPLC based BioRad D 10 analyzer. It is said that HbA1c has high pre-analytical stability and is stable for one week when stored at 4°C and for one year when stored at -70°C.^[3,4] So, to verify the stability of HbA1c in the above vials HbA1c is estimated for 7 days in the same vial. Just after estimation, vials are stored at 4°C and then HbA1c measured every day till 7th day in all the vials, marking 1st day as 0 day.

As indicated by Figures 1-6, there is no significant change in the HbA1c values estimated in the vials containing different anticoagulant. This is in accordance with the findings of Mailankot *et al.*^[5] Figures 1-6, also shows that the stability of HbA1c is not altered in the vials containing different anticoagulant when stored at 4°C for 7 days. The findings withdraws the need for a separate EDTA sample for HbA1c estimation as advocated by various commercial kits, and it also ensures the stability of the collected sample for 7 days when stored at 4°C.

To conclude, we can infer that the unnecessary extra sample collection for estimation of HbA1c could be avoided which in turn can improve patient compliance and this may contribute towards a better diabetic care. It can also be accounted that the avoidance of an extra Vacutainer for HbA1c can reduce the cost of HbA1c test, which is undoubtedly a costly test.

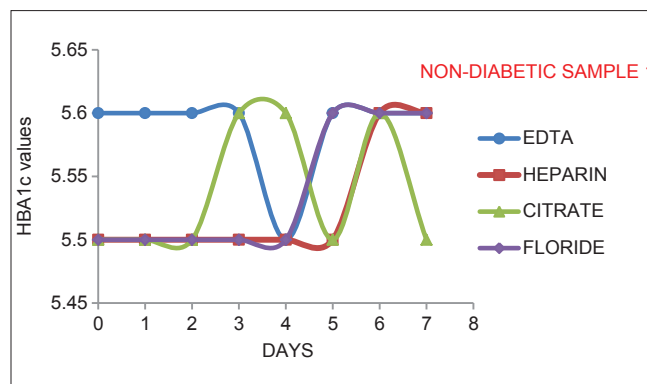


Figure 1: The results for healthy non-diabetic adult samples

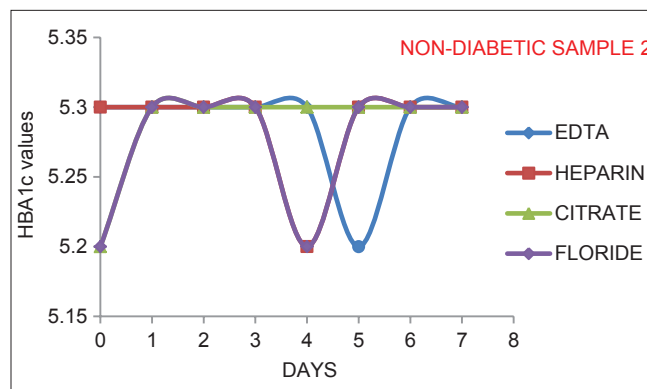


Figure 2: The results for healthy non-diabetic adult samples

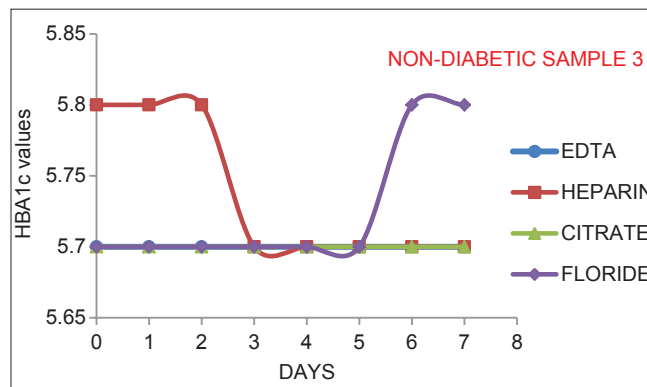


Figure 3: The results for healthy non-diabetic adult samples

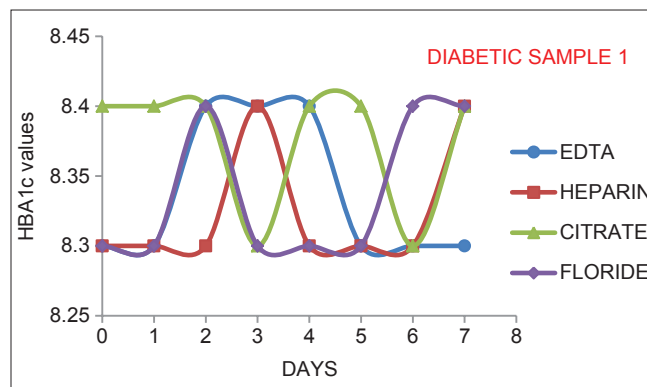


Figure 4: The results for adult diabetic samples

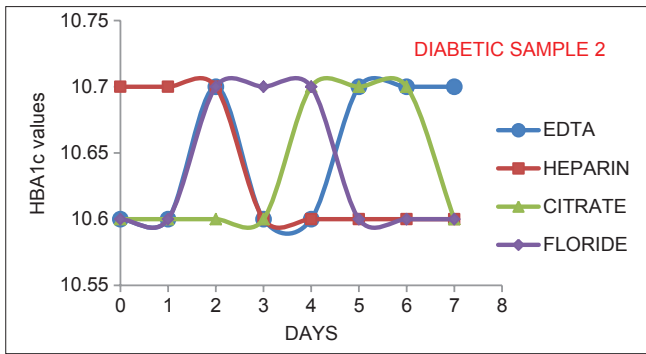


Figure 5: The results for adult diabetic samples

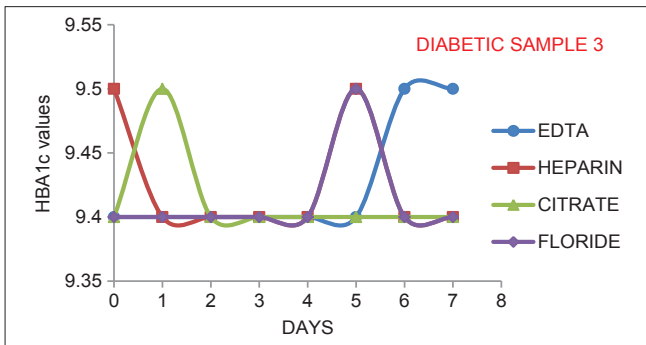


Figure 6: The results for adult diabetic samples

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