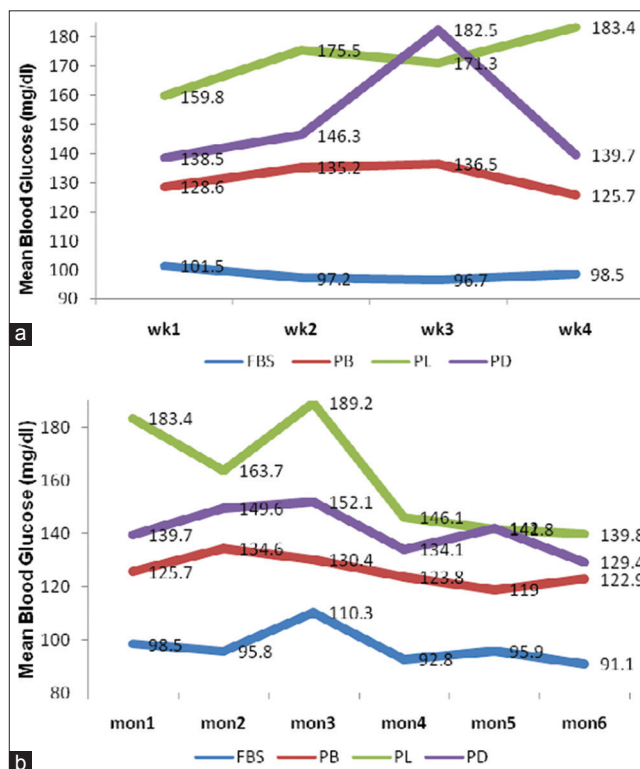


## Diagnosing Post-transplant Diabetes – The Need for Capillary Glucose Monitoring

Sir,

We read with interest the study by Kumar *et al.*<sup>[1]</sup> on the preoperative risk factors for the development of post-transplant diabetes mellitus (PTDM). The authors have reported an incidence of 24% of PTDM in a follow-up period of 12 months. In addition to the known risk factors of prediabetes, family history of diabetes, and age, the authors have looked at markers of insulin sensitivity and insulin resistance which have predictably correlated with the development of PTDM. However, the study does not specify the methods, that is, 75 g oral glucose tolerance test, fasting or post-meal glucose or capillary glucose, that were used to diagnose PTDM in the follow-up period. Fasting glucose levels carry low sensitivity in the diagnosis of PTDM because a majority of them develop post-meal hyperglycemia with peak glucose levels after lunch and after dinner. This pattern of steroid aggravated hyperglycemia has a clinical bearing on the tools used to diagnose PTDM.<sup>[2]</sup> They have also not mentioned the details of patients who developed transient hyperglycemia in the immediate postoperative period which has a bearing on the development of PTDM.<sup>[3]</sup>

We carried out a similar prospective observational cohort study in nondiabetic patients undergoing renal transplant at our center and currently have data up to 6 months post-transplant. The mean age of our patients was 36 years with 80% males and an average dialysis vintage of 9 months. We used capillary glucose measurements (CBG) post breakfast, post lunch, and post dinner which patients checked thrice a week in the first month and once a week in the next 5 months as part of clinical care monitoring. More than two values of post-meal CBG  $\geq 200$  were diagnosed as PTDM. In addition, 75 g glucose tolerance testing was done monthly. The incidence of PTDM in our study was 37% with a cumulative incidence of 20% at the end of the first month, 30% at the third month, and 37% at the sixth month of follow-up after transplant. A diagnosis of PTDM in two-thirds of our patients was made by home-monitored CBG. Post-lunch and post-dinner CBG values clearly separated out early in the follow up and were significantly higher in the PTDM group compared with the non-PTDM group ( $P = 0.04$ ) [Figure 1a and b]. The presence of post-transplant transient hyperglycemia was found to have significant association with future development of PTDM. Our observation did not demonstrate an association between pre-transplant body mass index, HCV-positive status, hypomagnesemia, cumulative dose of immunosuppressive medication, and rejection episodes with the occurrence of PTDM.



**Figure 1:** (a) Trend of mean Levels of Capillary blood glucose values at various time points (fasting, post breakfast, post lunch, post dinner) in patients during first 4 weeks post-transplant follow up. (b) Trend of mean capillary blood glucose values from first to sixth month post transplant at various time points (empty stomach, post breakfast, post lunch, post dinner)

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### Conflicts of interest

There are no conflicts of interest.

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