

# Capillary blood glucose monitoring and ambulatory peritoneal dialysis using Icodextrin: reassuring the patient

Bashari WA, Oyibo SO  
Department of Endocrinology, Peterborough City Hospital, Peterborough

## Background

Icodextrin is a large molecular weight glucose polymer used in the dialysate called Extraneal (Figure 1). It is hydrolysed to oligosaccharides, which are read as glucose by some blood glucose monitoring (BGM) devices resulting in overestimation of capillary blood glucose (CBG) readings. This is dangerous for patients on ambulatory dialysis trying to achieve optimum diabetes control.

## The case

A lady with type 1 diabetes using an insulin pump for diabetes control while on ambulatory peritoneal dialysis for end-stage renal disease had concerns about overestimation of CBG readings by her Contour BGM device test strips. She used Extraneal by day and a glucose-containing dialysate by night. Fear of hypoglycaemia made her keep CBG >14mmol/l, even though the Contour BGM test strips were noted as safe in such patients. We aimed to reassure her.

## Method

She provided five CBG readings using her Contour BGM device (glucose dehydrogenase flavin-adenine dinucleotide method). Paired blood samples were analysed using the One Touch Ultra BGM device (glucose oxidase method) and the laboratory (enzymatic hexokinase method). Agreements with the laboratory values were acceptable if at least 95% of analyser values did not deviate by more than 20%.

## Results

Table 1 shows the CBG values from both BGM devices and the corresponding laboratory values. Graphical representation demonstrated that none of the CBG values from both BGM devices deviated by more than 20% from the corresponding reference laboratory values.

## Conclusion

The Contour BGM device estimated CBG levels accurately when compared to the reference laboratory method and another BGM device: it was unaffected by the Icodextrin. Her hyperglycaemia was true hyperglycaemia from the glucose-containing dialysate used overnight. The lady was reassured and therefore, could make appropriate changes to her basal rate of insulin with confidence.

## Reference

- Oyibo SO, Pritchard GM, Mclay L, James E, Laing I, Gokal R, Boulton AJM. Blood glucose overestimation in diabetic patients on continuous ambulatory peritoneal dialysis for end-stage renal disease. *Diabet Med* 2002; 19: 693-696.

Table 1

	Lab value (Hexokinase method) (mmol/l)	Contour <sup>®</sup> BGM (mmol/l)	One Touch Ultra <sup>®</sup> BGM (mmol/l)
Pre-breakfast	23.3	22.0	25.8
Post-breakfast	21.4	21.6	22.3
Pre-lunch	10.8	10.2	11.4
Post-lunch	9.5	9.0	10.4
Late afternoon	5.4	5.6	6.4

Figure 1 – Glucose & Icodextrin

