

# Continuous Blood Glucose Monitoring with Intravenous Microdialysis - evaluating accuracy

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## OBJECTIVE

CMA 64 IView is a new microdialysis catheter intended for intravenous use. A gradient driven diffusion allows continuous monitoring of smaller substances such as glucose, lactate, pyruvate and urea in blood. The aim of this pilot study was to evaluate the accuracy of the IView in glucose monitoring by comparing the glucose levels measured with the IView to the glucose levels measured in whole blood for three days.

## MATERIALS AND METHODS

The study sample consisted of eight patients with Parkinson's disease. One IView (10 mm polyamide membrane with a molecular cut-off at 20 kD, CMA Microdialysis AB) was inserted in a brachial vein of the arm of each patient and one peripheral venous catheter was inserted in the other arm for blood samples. The IView was perfused at various flow rates with Ringer Acetate containing 25 IE/mL sodium dalteparin (Fragmin<sup>®</sup>, Pfizer). No signs of blood clotting were seen on any of the catheters. Microdialysis samples of 10-minute periods were collected every hour daytime for three days. Corresponding blood samples were also collected and immediately analyzed (I-Stat blood gas analyzer, Abbot). The study was approved by the Regional ethics committee of Linköping.

## RESULTS

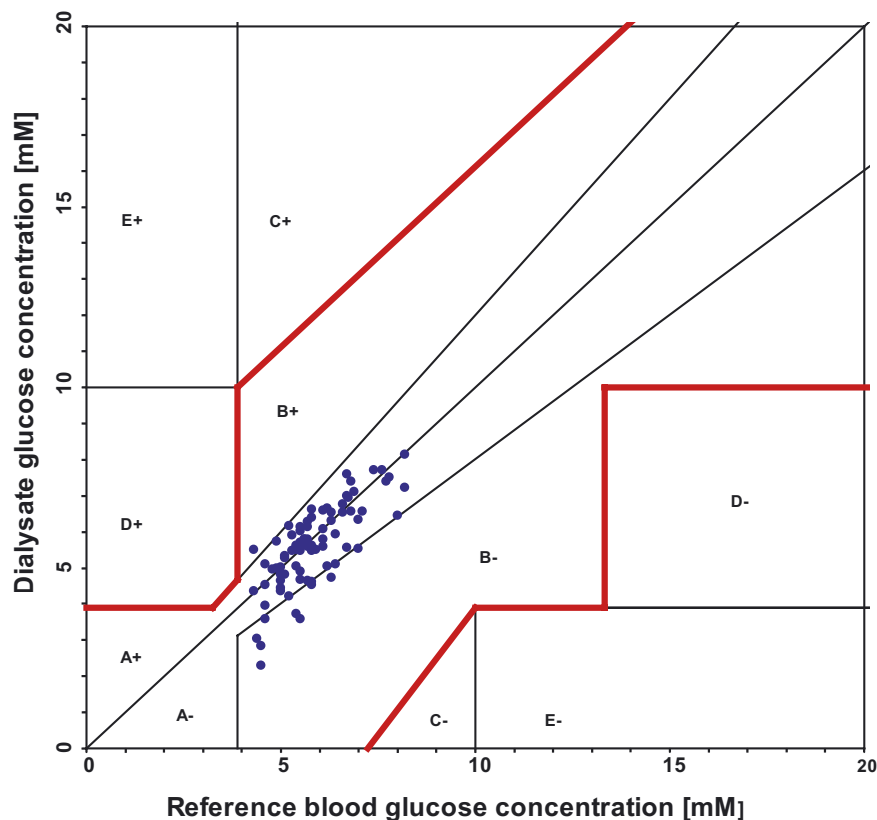


Fig 1. Clarke Error Grid Analysis of the samples collected from IView when perfused with a flow rate of 0,5  $\mu\text{l}/\text{min}$ .  $n=84$   
Zone A = 85,7% Zone AB = 100%

## CONCLUSION

Microdialysis was performed intravenously and glucose levels from the dialysates were compared to those from traditional blood samples. The results showed a very good correlation, see Fig. 1. Intravenous microdialysis enables frequent or continuous analyzes of endogenous substances or drugs without any blood loss or discomfort for the patient. The CMA 64 IView catheter is suitable for several purposes; from pharmacokinetic studies to monitoring of intensive care unit patients.