Journal of Diabetes Science and Technology
Volume 5, Issue 6, November 2011

ORIGINAL ARTICLE

Evaluation of Different Disinfectants on the Performance of an On-Meter Dosed Amperometric Glucose-Oxidase-Based Glucose Meter

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Abstract

Background:

Off-meter dosed photometric glucose-oxidase-based glucose meters have been reported to be susceptible to interference by hydrogen-peroxide-based disinfecting agents. The objective of this study was to determine if a single application of hydrogen-peroxide-containing Accel® wipe to disinfect an on-meter dosed amperometric glucose-oxidase-based glucose meter will influence its performance.

Method:

The performance of five on-meter dosed amperometric glucose-oxidase-based glucose meters was determined before and after disinfecting the devices with a single application of either CaviWipes® (14.3% isopropanol and 0.23% diisobutyl-phenoxy-ethoxyethyl dimethyl benzyl ammonium chloride) or Accel (0.5% hydrogen peroxide) wipes. Replicate glucose measurements were conducted before disinfecting the devices, immediately after disinfecting, and then 1 and 2 min postdisinfecting, with measurements in triplicate. Analysis was sequentially completed for five different meters. Results were analyzed by a two-way analysis of variance (Analyze-it software).

Results:

No clinical (<0.3 mmol/liter) or statistical differences ($p > .05$) in glucose concentration were detected when the on-meter dosed amperometric glucose-oxidase-based glucose meters were disinfected with either CaviWipes or Accel wipes and measured immediately or 1 or 2 min postdisinfecting. No clinically significant difference in glucose concentration was detected between meters (<0.3 mmol/liter).

Conclusion:

The on-meter dosed glucose oxidase amperometric-based glucose meters are not analytically susceptible to interference by a single application of hydrogen-peroxide-containing Accel disinfectant wipes.

J Diabetes Sci Technol 2011;5(6):1449-1452

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Keywords: Accel Wipes, CaviWipes, disinfecting agents, glucose meter performance, hydrogen peroxide, off-meter dosing, on-meter dosing

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