

Correlation between glucose and bupivacaine levels in cerebrospinal fluid after spinal anesthesia: glycorrachia as predictor for duration of sensory block.

Estan-Capell N., Quinones-Torrelo C., Sanchez-Morillo J., Estan-Jago L.
Servicio de Análisis Clínicos, Hospital Universitario Dr. Peset, Valencia, Spain.

BACKGROUND: Prediction of the duration of motor block after injection of a local anesthetic into cerebrospinal fluid (CSF) would be a very useful tool in clinical practice. However, previous attempts have not shown conclusive results. In this work, glycorrachia is demonstrated to be an adequate predictive parameter after spinal anesthesia using 0.5% hyperbaric bupivacaine.

METHODS: Two mL of local anesthetic through a continuous spinal catheter was administered to 40 patients. CSF was sampled at different time intervals from the onset of infusion to motor recovery. CSF bupivacaine concentrations were measured using chromatography. An automated analyzer was used for determining glycorrachia in the same samples.

RESULTS: For all patients, good correlation ($r(2) > 0.95$, $p < 0.05$) was obtained. From these results, it was possible to develop a general model which establishes the relationship between CSF glucose and bupivacaine concentrations ($R(2) = 0.987$, $p < 0.05$). Motor block is reached when CSF glucose concentration is about 245 mg/dL (13.5 mmol/L), which corresponds to 35 microg/mL of bupivacaine.

CONCLUSIONS: Glycorrachia measured during surgical intervention in patients undergoing spinal anesthesia with hyperbaric bupivacaine provides a mechanism for predicting the duration of motor block in a rapid and simple manner.

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