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Pupil examination: validity and clinical utility of an automated pupillometer.

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Abstract

Pupillary size and reactivity have long been a critical component of the clinical assessment of patients with neurological disorders. The pupillary examination may provide critical information related to new or worsening intracranial pathology and facilitate prompt intervention to minimize further neuronal damage. With this in mind, intensive care nurses caring for neurologically impaired patients frequently must perform pupillary examinations in concert with assigning a Glasgow Coma Scale score. The purpose of this study was to test the accuracy and reliability of an automated pupillometer compared with the standard manual examination as a preliminary step in assessing the usefulness of automated pupillometry in the critical care setting. Twenty patients in the intensive care units of a teaching hospital were examined by two groups of three examiners using both the manual examination with a penlight or similar light source and a portable automated pupillometer capable of measuring pupil size and reaction. Measurements by a static pupillometer before and after each pupillary examination were used to determine the mean "true" size of the pupil. This study found that the automated pupillometer is more accurate and reliable than the manual examination in measuring pupil size and reactivity. For these reasons, such a device may be a beneficial addition in the clinical assessment of neurologically impaired patients.

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