

Erroneous intracranial pressure measurements from simultaneous pressure monitoring and ventricular drainage catheters

Birch, A.A.^{ad}, Eynon, C.A.^b and Schley, D.^c

^a Department of Medical Physics and Bioengineering, Southampton General Hospital, United Kingdom

^b Wessex Neurological Centre, Southampton General Hospital, United Kingdom

^c Department of Mathematics and Statistics, University of Jaffna, Sri Lanka

^d Department of Medical Physics and Bioengineering, Southampton General Hospital, United Kingdom

Abstracts

The objective of this report is to highlight the potential for false pressure measurements from systems that combine intracranial pressure (ICP) measurement and ventricular drainage. If the ports of the drain become blocked to the extent that they present a high resistance to cerebrospinal fluid flow, then a significant pressure gradient between the inside and outside of the catheter may be established. Thus, any intracatheter transducer will faithfully record a pressure much lower than true ICP. This holds true for catheter-tip transducers when the transducer lies inside the catheter. In the absence of flow, however, pressures will equalize; therefore, accurate measurements may be taken if the drain is temporarily closed. We model this situation and provide simulations of expected measurements in such situations; these compare well to observed clinical readings.

Author keywords

Cerebrospinal fluid; Intracranial pressure; Ventricular drainage

Indexed keywords

EMTREE medical terms: adult; article; brain ventricle; case report; cerebrospinal fluid drainage; device; diagnostic error; drain; head injury; human; intracranial pressure monitoring; male; priority journal; simulation

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Medline is the source for the MeSH terms of this document.

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