Poorman ICP Monitoring System In TBI: An Indigenous Device For The Succour In A Resource Constrained Setting.

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Introduction

ICP (intracranial pressure) monitoring system is an important tool in managing TBI patients. In developing countries like India, intra-parenchymal ICP monitoring systems are not feasible & intraventricular monitoring is not preferred due to high infection rates, also there is difficulty in placement in absence of ventriculomegaly. We tried to evaluate the feasibility and utility of indigenous, low cost subdural ICP monitor in TBI patients.

Methods

Patients aged 18 years and above with GCS of 4 to 8, admitted within 4 hours of injury were enrolled. ICP was measured when there was doubtful or no definitive operable finding on CT head. Patients having ventriculomegaly, coagulopathy & unstable vital parameter were excluded. Sterile PVC infant feeding tube of 6 FG, further softened by boiling, is placed subdurally after making a bedside frontal burr hole and connected to a CVP manometer; sterile saline used as coupling agent. Total cost of consumables is INR 337 (USD 5.89). Based on serial ICP recording (upto72 hours), patients were grouped as high ICP group (> 20 cm H2O) & normal ICP group (< 20 cm H2O). Outcome was assessed at 6 months with Glasgow outcome score.

Results

19 patients were prospectively analyzed over 9 months, 18 of them were male with mean age of 34 years.

12 (64%) patients were in high ICP group, 8 of them had effaced cisterns on CT, all patients in this group were operated and had mean follow up GOS was 3.5.

7 (36%) patients were in normal ICP group, 2 nos of patients of normal ICP group had delayed high ICP and were also operated then. Rest of the patients in this group were managed conservatively and had excellent recovery (mean GOS 4.5)

Learning Objectives

This indigenous ICP monitoring system may be considered as an attractive alternative to the standard costlier system, especially in resource constrained setting.

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Conclusions

Our indigenous ICP monitoring system is feasible, cheap, easy to use & yield adequate diagnostic information for decision making.

Unconscious head injured patients with a normal looking CT head does not exclude raised ICP. Need for ICP monitoring should be determined by depth of coma in addition to radiographic imaging.

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