Can the choice of resuscitation fluid in a patient with traumatic brain injury affect the outcome?

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Madam, Traumatic brain injury (TBI) refers to non-congenital, non-degenerative damage to the brain caused by an external mechanical force which can lead to permanent or temporary impairment of cognitive, psychosocial, and physical functions, accompanied by a reduced or altered state of consciousness.¹ TBI is the most frequently occurring among common neurological disorders and accounts for a significant public health challenge.² TBI has a high prevalence worldwide in adolescent (15 to 18 years) and elderly (>65 years) groups with a reported incidence of 1.7 million cases in the US alone.³ Pakistan also has a high prevalence of TBI with approximately one-third of its population being affected by it mainly due to the high incidence of road traffic accidents.⁴

Patients with TBI often present with clinical features of shock especially when the mechanism of injury is associated with high-energy trauma like road traffic accidents. In such cases, there is an imminent need for fluid resuscitation which becomes more important in underserved areas where immediate neurosurgical care is not available. It is widely known that crystalloids are superior to colloids for the resuscitation of the patient in such settings.⁵ The ringer lactate solution is usually preferred over normal saline for resuscitation in non-TBI settings because of lower mortality but the same is not true in TBI settings in which normal saline has been reported with significantly lower mortality. This difference can be attributed to the fact that ringer lactate being a balanced crystalloid, is hypo-osmotic, and thus can increase the intracranial pressure as well as the incidence of hyponatraemia in patients with TBI.⁶ Therefore, in TBI, normal saline should be the fluid of choice for resuscitation instead of ringer lactate solution.

References


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LETTER TO THE EDITOR

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The choice of fluid for resuscitation is of paramount importance in TBI, especially in a country like Pakistan where advanced healthcare facilities for neurosurgical care are not available in every city and village. Hence, many patients get referred to tertiary care centers from primary and secondary care centers after initial resuscitation for further management. In such cases, the correct choice of resuscitation fluid can significantly help in improving the odds of survival till patient’s arrival at higher care facility, and thereby help in decreasing the overall mortality associated with TBI.

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