

ABSTRACT

Drug Utilization Study of Mannitol in Brain Injury Patient

(Study at Dr. Soetomo General Hospital Surabaya)

Mannitol is one of hiperosmolar agent to reduce increasing ICP for patients with cerebral edema. Mannitol's primary mechanism of ICP reduction is by increasing the osmotic gradient across the blood-brain barrier (BBB). Mannitol's secondary mechanism related to its favorable cardiovascular and rheological effects. Increased plasma volume and subsequent decrease in hematocrit, viscosity and red blood cell deformability improve flow through microvasculature while enhancing cardiac output (CO) and mean arterial pressure (MAP).

The aim of this study is to analyze the utilization of mannitol in brain injury patient at Dr. Soetomo General Hospital Surabaya. The study is prospective using data from medical records during the period March 1, 2014 – May 31, 2014. It is an observational study with time limiting sampling method.

From this study, it is known that administration of mannitol divided into loading dose (LD) and maintenance dose (MD). Patients who received LD is 46,9%. Dose of mannitol is appropriate according to guideline. There a variation for time of mannitol giving depend on neurologic status and CT scan result. Most of administration of mannitol is before 24 hours (59,375%). There are two drug related problem in this study. The first is side effect electrolyte disturbances included hypernatremia, hyponatremia dan hypokalemia. The second is nonadherence.

Drug utilization of mannitol on brain injury patient in Dr. Soetomo General Hospital were appropriate according to Guideline in Management of Traumatic Brain Injury.

Keyword: Mannitol, cerebral edema, brain injury, drug utilization study.