Efek pemberian Manitol terhadap penurunan kadar Hematokrit pada kasus peningkatan tekanan Intrakranial pasca cedera kepala : penelitian pendahuluan = The effect of Mannitol administration on Hematocrit level in cases of increased Intracranial pressure post traumatic brain injury : a preliminary study / Yuyun Miftahul Rahma

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Abstrak

ABSTRAK
Latar Belakang. Efek penurunan kadar hematokrit oleh manitol memberi manfaat lebih pada tata laksana cedera kepala. Kadar hematokrit 30-35% merupakan kadar hematokrit efektif untuk mendapatkan keluaran yang baik pasca cedera kepala. Meski dosis awal rekomendasi pemberian manitol memiliki rentang yang cukup besar antara dosis rendah dengan dosis tingginya, kedua dosis ini memiliki efektivitas yang sama dalam menurunkan Tekanan Intrakranial (TIK). Diduga kedua dosis ini juga memiliki efek yang sama terhadap penurunan kadar hematokrit.
Metode. Penelitian ini merupakan uji eksperimental klinis dengan randomized controlled trial tersamarkan. Subjek penelitian adalah pasien cedera kepala sedang (CKS) dan cedera kepala berat (CKB) dengan gejala dan tanda klinis peningkatan TIK yang terindikasi mendapat terapi manitol yang datang ke Rumah Sakit Cipto Mangunkusumo (RSCM) Jakarta dan bersedia mengikuti penelitian. Dilakukan wawancara, pemeriksaan fisik umum dan neurologis serta pemeriksaan kadar hematokrit. Dilakukan analisis data menggunakan perangkat SPSS 17.0.
Hasil. Diperoleh 30 subjek pasien cedera kepala sedang dan berat yang mendapat terapi manitol, masing-masing 15 orang untuk kelompok manitol dosis 0.5g / kgBB dan 1g/ kgBB. Terjadi penurunan kadar hematokrit sebesar 5% pada kelompok dosis 0.5g/ kgBB dan sebesar 6% pada kelompok manitol dosis 1g/ kgBB pasca 10 menit pemberian manitol. Kadar tersebut meningkat kembali ke kadar normal 6 jam pasca pemberian. Didapatkan kecendrungan penurunan ratarata Mean Arterial Blood Pressure (MABP) dan frekuensi nadi pasca 10 menit pemberian manitol, yang kemudian mengalami peningkatan nilai saat dilakukan pengukuran 6 pasca jam pemberian. Didapatkan kecendrungan peningkatan GCS dan perbaikan reaktivitas pupil pada kedua kelompok dosis manitol di dua waktu pengukuran.
Kesimpulan. Terdapat kecenderungan penurunan kadar hematokrit pasca 10 menit pemberian manitol, yang meningkat kembali ke kadar normal 6 jam pasca pemberian pada kedua dosis manitol yang diteliti. Pada penelitian ini juga didapatkan kecendrungan perbaikan kondisi klinis pasien yang tidak berbeda pada kedua dosis manitol pasca 10 menit dan 6 jam pemberian.

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ABSTRACT
Background: The decreasing effect of hematocrit due to mannitol gives additional benefit in management of traumatic brain injury (TBI). Hematocrit level of 30 - 35% is the effective level to obtain good outcome after TBI. Even though initial recommended dosage of mannitol has a relatively wide range between low and high dosage, both dosages have similar effectivity in reducing intracranial pressure (ICP). It is assumed that both dosages also have similar effect on decreasing hematocrit level.
Methods: This was a clinical experimental study with double-blind randomized controlled trial. The study subjects were patients with moderate and severe TBI with signs and symptoms of increased ICP who have indications to be given mannitol and were hospitalized in Cipto Mangunkusumo Hospital, Jakarta and agree to participate in the study. All subjects were interviewed, underwent general and neurological physical examination, as well as level of hematocrit. Data analysis were done by using SPSS 17.0.
Results: There were 30 patients with moderate and severe TBI who received mannitol. They were divided into two groups, each consists of 15 patients. The first group received mannitol 0.5g/kgBW and the second group received 1g/kgBW. Hematocrit level was decreased by 5% in the first group, and 6% in the second group after 10 minutes administration of mannitol. The hematocrit level was observed to increase to its normal value after 6 hours administration of mannitol. There was a tendency of decreasing Mean Arterial Blood Pressure (MABP) and heart rate after 10 minutes administration of mannitol, which then would increased after 6 hours after administration. In addition, there were also tendencies of increasing GCS and better pupillary reactivity in both groups on both measurement.
Conclusions: The hematocrit level was found to decrease after 10 minutes administration of mannitol, and increase back to its normal value after 6 hours administration on both dosages. This study also found that moderate and severe TBI patients receiving mannitol tend to show clinical improvement which were similar on both dosages both after 10 minutes and 6 hours of adminstration.