

# Pengaruh penambahan mannitol pada hidrasi terhadap kejadian acute kidney injury pasca kemoterapi berbasis cisplatin dosis tinggi = The effect of mannitol addition to hydration towards acute kidney injury event after high dose cisplatin chemotherapy.

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## Abstrak

Latar Belakang: Strategi yang sering digunakan untuk mengurangi kejadian acute kidney injury pasca kemoterapi cisplatin adalah kombinasi hidrasi dan mannitol. Walaupun sebagian studi menyatakan bahwa mannitol menurunkan kejadian acute kidney injury pasca kemoterapi cisplatin, studi lainnya menunjukkan hal sebaliknya.

Tujuan: Mengetahui pengaruh penambahan mannitol pada hidrasi terhadap kejadian acute kidney injury pada pasien kanker yang mendapatkan cisplatin dosis tinggi.

Metode: Studi dengan desain kohort ambispektif terhadap pasien kanker organ padat yang mendapat kemoterapi cisplatin dosis tinggi di RSCM dan MRCCC Siloam Hospitals. Penelitian dilakukan pada September 2017-Februari 2018. Luaran yang dinilai adalah peningkatan kreatinin serum  $\geq 0,3$  mg/dl atau 1,5 kali kadar pra kemoterapi. Analisis bivariat dan multivariat dengan logistik regresi dilakukan untuk menghitung crude risk ratio RR dan adjusted RR kejadian acute kidney injury pasca kemoterapi cisplatin dosis tinggi antara kelompok dengan penambahan mannitol terhadap kelompok tanpa penambahan mannitol pada hidrasi.

Hasil: Data didapat dari 110 pasien (57,3% laki-laki) dengan median usia 44,5 tahun (kisaran 19 - 60 tahun); 63 mendapat penambahan mannitol dan 47 hanya hidrasi. Proporsi kejadian AKI lebih tinggi pada kelompok yang mendapatkan penambahan mannitol vs kelompok tanpa penambahan mannitol (22,6% vs 10,4%). Pada analisis bivariat didapatkan penambahan mannitol pada hidrasi meningkatkan probabilitas terjadinya AKI pasca kemoterapi cisplatin dosis tinggi, dengan risiko relatif (RR) sebesar 2,168 (IK 95% 0,839-5,6). Pada analisis multivariat dengan mengontrol usia, adjusted RR adalah 3,52 (IK 95% 1,11-11,162; p value = 0,033).

Simpulan : Penambahan mannitol pada hidrasi memiliki risiko lebih besar terhadap kejadian AKI pasca kemoterapi Cisplatin dosis tinggi.

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Background: The addition of mannitol to saline hydration has been used frequently for preventing cisplatin induced acute kidney injury (AKI). Meanwhile, the initial studies demonstrated that mannitol diuresis decreased cisplatin induced renal injury and others have shown renal injury to be worst.

Objective: To compare the risk of acute kidney injury in cancer patients receiving high dose cisplatin with and without addition of mannitol.

Method: This was an ambispective cohort study based on consecutive sampling at Cipto Mangunkusumo General Hospital and Mochtar Riady Comprehensive Cancer Centre (MRCCC) Siloam Hospitals. The data was obtained from September 2017 to February 2018. The choice of mannitol administration based on responsible physician clinical judgment. The outcome was any increment more than 0,3 mg/dl or 1,5 times from baseline of serum creatinine. Analysis was done by using SPSS statistic which consist of; univariate,

bivariate and multivariate logistic regression to obtain crude risk ratio and adjusted risk ratio of cisplatin induced acute kidney injury probability of mannitol addition on hydration.

Result: Data from 110 patients (57,3%) male with a median age of 44,5 years old (range 19 to 60 years old) were collected; 47 received saline alone and 63 received saline with mannitol addition. Acute kidney injury were higher with mannitol than without mannitol addition (22,6% vs 10,4%). Bivariate analysis showed higher probability of post chemotherapy AKI in mannitol group (RR 2,168; 95% CI 0,839-5,6). On multivariate analysis the adjusted RR was 3,52 (95% CI 1,11-11,162; p value = 0,033) by controlling age.

Conclusion: The addition of mannitol on hydration had higher risk of AKI after high dose cisplatin chemotherapy.