Hubungan perubahan status disfungsi sistem organ berdasarkan skor Modified Sequential Organ Failure Assessment dengan penggunaan Furosemid pada pasien perawatan intensif = The Effects of Furosemide usage with organ system failure status based on modified Sequential Organ Failure Assessment Score in Critically Ill Patient

Kevin Varian Marcevianto, author

Abstrak

Latar Belakang: Sebanyak 86% pasien dengan administrasi cairan mengalami akumulasi cairan positif hingga menyebabkan 35% dari seluruh pasien ICU tahun 2009-2012 mengalami volume cairan berlebih. Efek terburuk akibat hal ini adalah kegagalan multi sistem organ tubuh. Sehingga, salah satu penanganan volume cairan berlebih adalah intervensi diuresis untuk menyelesaikan masalah fisiologis. Masih belum dibuktikan melalui penelitian mengenai manfaat penyelesaian disfungsi sistem organ dari diuresis furosemid untuk menurunkan balans cairan di saat pasien justru mengalami hipoperfusi organ serta berbagai efek samping dari furosemid tersebut.
Tujuan: Atas dasar itu, dilakukan penelitian berupa analisis hubungan antara perubahan status disfungsi sistem organ berdasarkan skor MSOFA dengan penggunaan furosemid, beserta analisis data demografik dan klinik pasien volume cairan berlebih di perawatan intensif.
Metode: Desain penelitian merupakan kohort retrospektif dengan pengambilan data dari 194 sampel rekam medik yang didapatkan secara consecutive sampling. Data penggunaan furosemid dan perubahan skor MSOFA pada pasien fluid overload dimasukkan dalam tabel 2x2, kemudian dianalisis menggunakan metode chi square.
Hasil: Hasil membuktikan bahwa terdapat hubungan signifikan antara perubahan status disfungsi sistem organ dengan penggunaan furosemid pada pasien perawatan intensif ($p<0,05$). Nilai risiko relatif menunjukkan bahwa penggunaan furosemide justru menghasilkan nilai MSOFA yang lebih tinggi sebanyak 1,271 kali daripada pasien yang tidak menggunakan furosemide (95% IK 1,108 - 1,458).
Diskusi: Penggunaan furosemid memperburuk disfungsi organ berdasarkan skor MSOFA. Hal ini dapat terjadi akibat efek iatrogenik kekurangan balans cairan dan efek samping. Data klinis yang berkorelasi signifikan dan perlu dianalisa lebih lanjut, mencakup: balans cairan sebelum dan sesudah terapi, faktor risiko, dan komponen disfungsi sistem organ.
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Background: Eighty-six percent of patients were administrated with IV Fluid resuscitation had positive fluid accumulation that results in fluid overload in 35% of all ICU patients in 2009-2012. The worst consequence of this situation is multi organs failures. Thus, one of the fluid overload treatment is pharmacological diuresis to solve the physiological problems. Despite of its adverse effects and fluid balance decrement on the hypoperfusion organ, the organ failure resolution of furosemide usage has not been proven through any research. Hence, a research which analyzed the correlation of organ system failure status based on modified sequential organ failure assessment score with furosemide usage on intensive care patient and their demographics data has been conducted.
Method: The research design was a retrospective cohort which analyzed 194 subjects from Cipto

Mangunkusumo Hospital ICU medical records selected by consecutive sampling method. Data of furosemide usage and MSOFA Score changes were recorded to the 2x2 table, then they were analyzed by chi square method.
Results: The result proves that there is significant association between worsening organ system failure with furosemide usage on critically ill patients ($p<0,05$), especially in cardiovascular and central venous system. The relative risk result shows that furosemide usage resulted in higher MSOFA score 1,271 times more than those patients with no furosemide diuresis usage (95% CI 1,108 - 1,458).
Conclusions: The furosemide usage worsens the organ failure based on MSOFA score. These can be resulted by iatrogenic effect of too negative fluid balance and furosemide's adverse effects in the patients. There are clinical data which have significant correlation and can be analysed further, including: fluid balance before and after therapy, risk factors, and organ failure components.