Pengaruh volume ultrafiltrasi dan perubahan elektrolit terhadap pemanjangan dispersi QT corrected pada pasien hemodialisis 2 kali seminggu = The effect of ultrafiltration volume, serum potassium changes, serum ionic calsium, serum magnesium changes on increased QT corrected dispersion in chronic hemodialysis patients twice a week

Desi Salwani, author

Abstrak

Latar Belakang: Pasien hemodialisis (HD) kronik memiliki peningkatan risiko kematian. Penyakit kardiovaskular seperti aritmia merupakan penyebab kematian utama pasien HD kronik. Kidney Disease Outcome Quality Initiative merekomendasikan HD 3 kali per minggu, tetapi sebagian besar pasien di Indonesia menjalani HD dengan frekuensi 2 kali per minggu. Hal ini menyebabkan interdialytic weight gain, volume ultrafiltrasi, dan laju ultrafiltrasi menjadi lebih besar dan perubahan kadar elektrolit yang mendadak dapat mencetuskan arritmia.
Tujuan: Mengetahui pengaruh volume ultrafiltrasi, kadar kalsium ion pre HD, penurunan kadar kalium dan magnesium serum terhadap pemanjangan dispersi QTc pasien yang menjalani HD 2 kali seminggu.
Metode: Penelitian ini merupakan penelitian kohort prospektif di lakukan di ruang Hemodialisis RSUPN Dr. Cipto Mangunkusumo, Jakarta. Sebanyak 128 pasien memenuhi kriteria inklusi dan ekslusi. Pemeriksaan kalium, magnesium dan elektrokardiogram untuk menilai dispersi QTc dilakukan sebelum dan sesudah HD serta kalsium ion sebelum HD. Analisis data dihitung menggunakan perangkat SPSS. Perbandingan antara pasien dengan atau tanpa pemanjangan dispersi QTc dilakukan dengan uji Chi-square dan uji Fisher exact untuk data kategorik dan uji T tidak berpasangan untuk data kontinu distribusi normal atau uji Mann whitney bila distribusi tidak normal. Analisis multivariat regresi logistik multivariabel digunakan untuk mengidentifikasi faktor-faktor yang berpengaruh terhadap pemanjangan dispersi QTc.
Hasil: Penelitian ini melibatkan 112 pasien. Terdapat pemanjangan dispersi QTc sebanyak 51 %. Pengaruh volume ultrafiltrasitehadap pemanjangan dispersi QTc tidak bermakna secara statistik (risiko relatif 1,069 dan IK (95%) 0,742-1,530 serta p=0,715). Pengaruh perubahan kadar kalium dan kadar kalsium ion pre HD terhadap pemanjangan dispersi QTc tidak bermakna secara statistik (p=0,943 dan p=0,842). Perubahan kadar magnesium terhadap pemanjangan dispersi QTc didapatkan berbeda bermakna secara statistik (p=0,023). Tidak dilakukan analisis multivariat karena hanya terdapat satu variabel dengan p < 0,02.
Simpulan: Pengaruh volume ultrafiltrasi, perubahan kadar kalium dan kadar kalsium ion pre HD terhadap pemanjangan dispersi QTc tidak bermakna secara statistik. Perubahan kadar magnesium terhadap pemanjangan dispersi QTc berbeda bermakna secara statistik.
.....
Introduction: Patients with end-stage renal disease (ESRD) requiring hemodialysis have a high mortality rate. Cardiovascular mortality is usually occurs suddenly. Kidney Disease Outcome Quality Initiative recommended three time a week HD but in Indonesia only two time a week HD. Two time a week HD increase the risk of higher interdialytic weight gain and ultrafiltration volume (UFV) contributing to high serum electrolyte changes that cause arrhytmia.
Objective: The aim of this study is to find effect of ultrafiltration volume, serum potassium changes, pre

hemodialysis serum ionic calsium, serum magnesium changes on increased QTc dispersion in chronic hemodialysis patients twice a week.
Methode: This study is a prospective cohort study. A total 112 patient underwent twice-weekly regimens of HD in Cipto Mangunkusumo Hospital, Jakarta. Blood samples were Drawn for measurement of serum electrolytes, and a 12-lead ECG were performed to measure the QTc interval and QTc dispersion, immediately before and just after dialysis sessions. Analyzes were performed with SPSS. Chi-square or Fisher exact was used to compare QTc dispersion changes before and after dialysis
and ultrafiltration volume. Paired t test was used to compare QTc dispersion changes and serum electrolytes before and after dialysis within the study group. Mann Whitney test was used for abnormal distribution. Multivariate analysis was used to find effect of ultrafiltration volume, serum potassium changes, pre HD serum ionic calsium, serum magnesium changes on increased QTc dispersion in chronic hemodialysis patients twice a week.
Result: One hunDred twelve patients underwent twice weekly HD were analyzed. Proportion of patients with prolong of QTc dispersion was 51 %. The effect of ultrafiltration volume with the prolong of QTc dispersion was not statistically significant (relative risk 1,069, CI (95%) 0,742-1,530, p=0,715). The effect of serum potassium changes and pre HD serum ionic calsiumon increased QTc dispersion were not statistically significant (p=0,943 and p=0,842). The effect of serum magnesium changes with the elevated of QTc dispersion was statistically significant (p=0,023). Multivariate analysis was not done.
Conclusion: The effect of ultrafiltration volume, serum potassium changes and Pre HD serum
ionic calsium on increased QTc dispersion was not statistically significant. The effect of serum magnesium changes with the elevated of QTc dispersion was statistically significant.