

Pre and post haemodialysis: The effect of electrolyte changes on ECG parameters of patients with End Stage Renal Disease.

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Abstract

Hyperkalaemia is a common problem in dialysis patients with end-stage renal disease (ESRD) this might lead to increase corrected QT (QTc) duration which could have serious consequences. The aim of this study is to assess the effect of serum electrolyte imbalance, mainly Potassium, causing ECG changes such as QTc during haemodialysis (HD). Prospectively, eighteen haemodialysis patients with ESRD had ECG and serum electrolyte tested before and after HD. The ECG parameters were measured manually, the QT interval was corrected to the heart rate, the data was calculated and analysed with SPSS software.

There were significant effects of HD on serum electrolytes and some ECG parameters; the pre-HD K⁺ was 5.24±0.87 and post-HD was 3.93±0.69 (P 0.007) and pre-HD Ca²⁺ was 1.98±0.17 and post-HD was 2.22±0.15 (P 0.003). QTc interval pre-HD 431.3 ± 32.1 and post-HD was 443.5 ± 32.4 (P 0.002). T wave pre- HD 4.33±1.89 and post-HD 3.18±1.11 (P0.045). An abnormally prolonged QTc (>440 ms) was measured in 27.7% of cases pre-HD and was recorded in 38.9% of cases in post-HD.

There was correlation between pre-HD K⁺ and pre-HD QTc interval (r 0.699, P 0.001), and negative influence of the net change of K⁺ on the amplitude difference of T wave during haemodialysis (r -0.422, P 0.05). No other influence of serum electrolyte imbalance on ECG changes was noted. There were changes in serum electrolyte changes and ECG parameters during haemodialysis. There was limited association between serum electrolyte and ECG parameter changes during haemodialysis.

Key words:

End stage renal disease(ESRD); ECG changes; Electrolyte changes; Haemodialysis HD

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