

## **MODIFICATION OF POTASSIUM IN DIALYSATE: IMPACT ON PER-DIALYTIC PLASMA POTASSIUM CONCENTRATIONS AND ELECTROCARDIOGRAMS**

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### Introduction:

Cardiovascular mortality, and especially sudden death, are particularly high in hemodialysis (HD) patients. Both hyperkalemia and variations of potassium (K) concentrations induced by HD sessions could explain, at least in part, this over-mortality. In the current work, we analyzed the impact of increasing dialysate bath by 1 mmol/L of K on plasma K concentrations before and after HD session, but also on electrocardiogram (ECG) results before and after the HD session.

### Methods:

27 prevalent HD patients without hyperkalemia ( $K > 5.5$  mmol/L) were included. ECG and K measurements were realized before and after the first HD session of the week for two weeks. Then, K in dialysate was increased (from 1 or 3 to 2 or 4 mmol/L, respectively). Blood and ECG measurement were then repeated for the two next weeks.

### Results:

Before dialysate change, corrected QT (QTc) and QT dispersion were significantly increased after the HD session compared to values (in ms) before the session (459 vs 444,  $p = 0.0097$  and 41.5 vs 38,  $p < 0.0001$ , respectively). After the modification of the dialysate, QTc after HD session was still increased in comparison to values before HD (453 vs 441,  $p = 0.0033$ ), but QT dispersion was not different before and after the HD session (38 vs 38). Moreover, focusing on QT dispersion, values after HD session were significant lower after the modification of the dialysate, than before modification (38 vs 41.4,  $p < 0.0001$ ). After modification of the dialysate, no patients developed pre-dialysis hyperkalemia ( $K > 5.5$  mmol/L), but we observed a significant lower proportion of post-dialysis hypokalemia ( $K < 3$  mmol/L) compared to results before the change (3 vs 41%).

### Conclusions:

Increasing K in the dialysate by 1 mmol/L is associated with a lower QT dispersion at the end of the HD session. This observation is probably explained by the concomitant lower prevalence of hypokalemia observed after the HD session. This strategy is not associated with a higher risk of predialysis hyperkalemia. Further studies are required to know if such a strategy is also associated with a lower risk of arrhythmia and eventually a lower mortality risk.

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