

#1950 - Electrocardiographic, volume and hemodynamic changes after hemodialysis: a single center evaluation

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Introduction: Hemodialysis causes changes in blood volume and electrolytes concentrations .Some electrocardiographic changes and even arrhythmia have been reported after hemodialysis in adults. This study conducted to define the changes of blood volume (weight and blood pressure) and electrocardiographic parameters after hemodialysis in children and young adults.

Materials and methods: Electrocardiographic evaluation was done in 20 hemodialysis cases before and immediately after hemodialysis. The bicarbonate based dialysis solutions were used for all .They including 11 boys (55%) and 9 girls (45%), aged 8 years to 28 years and 3 months, were placed on dialysis from 4 months to 14 years ago .The dialysis schedules were standard hemodialysis (12 hours weekly) in 8(40%), and non-standard dialysis (

Results: heart rates before dialysis were 74-150(98 ± 21.3) and reached to 50-140(98 ± 21.3) beats/minutes after dialysis ($p>0.05$).The rhythm of heart before dialysis was sinus except in 1 case, after dialysis all had sinus rhythms. The ST -T changes present in 5(25%) cases, after dialysis these changes appeared in 4 others (9 subjects; 45%). EKG findings suggestive of heart block which was detected in one patient resolved with dialysis. Electrocardiographic findings of hyperkalemia was present in 5 cases (25% which disappeared in 3(15%) with dialysis .Ventricular strain pattern was increased from one case (5%) to 5 subjects (25%).

Body weight, hemodynamic (heart rate, systolic and diastolic blood pressures) and EKG parameters before and after dialysis were compared. Significant decrease in weight , systolic and diastolic blood pressures and mean arterial pressures were found after dialysis (P=

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0.0001,0.001,0.001,and 0.043 respectively) . Dialysis was not associate with significant changes in heart rate, QTC, QTLC and PR intervals, and QRS complex duration (P>0.05 for all).

Conclusion: dialysis result to some positive (resolution of EKG findings of hyperkalemia) and negative (ventricular strain pattern)electrocardiographic changes. Significant volume (reduction in body weigh)and hemodynamic (systolic and diastolic and mean arterial blood pressures) changes induces by hemodialysis can result to ischemia of vital organs and kidneys. Close monitoring of blood pressure during dialysis and management of inappropriate blood pressure changes potentially can protect patients from ischemic injuries.

Key words: Hemodialysis, blood pressure, weight, electrocardiographic changes

References

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