ADDED LOW DOSE OF SPIRONOLACTONE IN MANAGING HIGH BLOOD PRESSURE IN CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENTS

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INTRODUCTION:

Aldosterone has been identified in the last decade as an important contributor to the progression of both kidney and heart disease [1]. Anatomic abnormalities, including left ventricular (LV) hypertrophy and myocardial fibrosis are strong predictors of cardiac death in uraemic patients with heart failure and are more pronounced in dialysis patients compared with non-renal controls [2]. Echocardiographic assessment of LV mass has provided the best non-invasive information to permit diagnostic, therapeutic, and prognostic assessment of hypertensive heart disease [3,4]. Counteraction of the aldosterone effect with spironolactone is an approach that is being used more frequently in the treatment of hypertension and congestive heart failure. Dialysis patients are at risk of hyperkalemia, therefore the use of spironolactone is not common. Surprisingly, there is a lack of information in literature about the justification and use of spironolactone in peritoneal dialysis patients.

OBJECTIVES:

This study was carried out prospectively to study trends in the left ventricular structure and function, blood pressure control after adding low dose of spironolactone use, and to assess the safety in continuous ambulatory peritoneal dialysis.

PATIENTS AND METHODS:

Thirty eight patients on continuous ambulatory peritoneal dialysis were selected for the study. All patients were adequately dialysed, with serum potassium levels less than 5.6 mmol/l. Eligible patients received spironolactone tablets 25 mg daily. Spironolactone tablets discontinued according to serum potassium. Echocardiography was performed at 6 and at 12 months. Biochemical, blood pressure and medication data were collected.

RESULTS:

Controlled blood pressure was achieved after 6 months ($p<0.001$) and 12 months ($p<0.001$) compared to the baseline. There was significant regression of interventricular septal thickness, left ventricular internal diameter and left ventricular wall thickness after 6 and12 months of spironolactone treatment ($p<0.0001$).

Selected Demographic characteristics

Age (Mean SD)years	55.84 12.51
Duration of Dx (Mean SD)months	16.39 ±13.11
Gender (Number and %) Male Female	 26(68.4 %) 12(31.6 %)
Diagnosis (Number and %) Diabetic Nephropathy Chronic GN CTID	 28(73.7%) 4(10.5 %) 6(15.8%)
KT/V(Mean SD)	2.25 ±0.44

Blood Pressure before and after Spironolactone

	Before treatment A	After 6 months B	After 12 months C	*p value A vs B	*p value A vs C
Systolic BP Median((Percentiles 25,75)	151.5 (140,156.2)	140 (138,143.5)	139.5(136.7,140)	0001	0001
Diastolic BP Median((Percentiles 25,75)	79 (75,83)	75 (70,80)	74.5 (70,76)	0001	0001

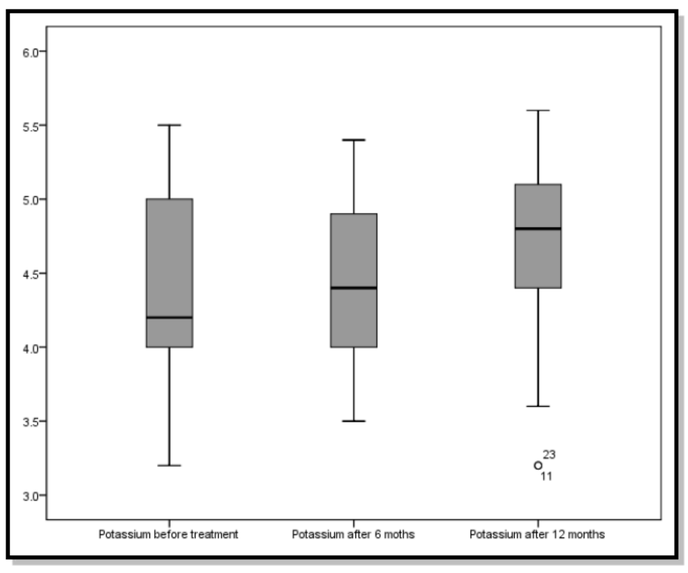
Controlled blood pressure was achieved after 6 months ($p<0.001$) and 12months ($p<0.001$) compared to the baseline.

Left ventricular structure changes

	Baseline (A)	After 6 month (B)	After 12 month (C)	P value A vs B	P value A vs C
Interventricular septal thickness (cm)	1.20 o.25	1.10 0.21	1.03 0.10	<0.001	<0.001
LV internal diameter at end of diastole (cm)	6.06 0.68	5.20 0.68	5.04 0.58	<0.001	<0.001
LV wall thickness (cm)	1.27 o.22	1.08 0.19	1.02 0.12	<0.001	<0.001

There was significant regression of interventricular septal thickness, left ventricular internal diameter and left ventricular wall thickness after 6 and12 months of spironolactone treatment ($p<0.0001$).

Serum Potassium levels during Treatment



The mean potassium level was 4.34±0.63mmol/l at baseline and 4.45±0.24 mmol/l at study completion ($p=0.24$). Gynecomastia was noted in one patient.).

Spironolactone is a mineralocorticoid receptor antagonist that was shown to lower BP effectively in both general hypertensive patients and patients with primary aldosteronism. Spironolactone has shown improvement of LV function in patients with chronic heart failure (CHF)[6]. There is lack of information on spironolactone use in continuous ambulatory peritoneal dialysis (CAPD) patients. A first case report was published by Hausmann and Liel-Cohen [7] claiming the safety of aldosterone antagonism (25 mg spironolactone daily) in a 73-year-old diabetic patient with CHF on cycling PD. During 10 months of therapy, serum potassium did not exceed 5.1 mmol/l and both systolic and diastolic function significantly improved

CONCLUSION:

This study demonstrates that low dose of spironolactone therapy in continuous ambulatory peritoneal dialysis patients can be safe. Spironolactone effectively improves blood pressure control and cardiac function. LV hypertrophy improved significantly after treatment. No significant rise of serum potassium was noted. More studies on a large scale are required to confirm the safety of spironolactone in peritoneal dialysis.

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Peritoneal dialysis - A
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