

Fludrocortisone - a treatment for tubulopathy post paediatric renal transplantation: A Scottish study

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BACKGROUND

Post renal transplantation, tubulopathies may occur due to transplantation itself or secondary to the use of immunosuppressive regimen^{1,2}. This often requires administration of large doses of sodium bicarbonate and sodium chloride, often resulting in poor compliance.

Adult studies have shown the advantages of fludrocortisone (*fludro*) in the treatment of severe tubulopathies post renal transplant³. There is limited data in children. We report our experience from a Scottish tertiary paediatric centre.

OBJECTIVE

- To evaluate the efficacy of fludrocortisone as a treatment for tubulopathy post renal transplantation in children.
- To review the reduction in sodium supplementation in patients commenced on fludrocortisone.

METHOD

- Retrospective study using data collected from a Scottish renal database from December 2014 to January 2016.
- Data on patient demographics, medication, renal function and feeds obtained.

RESULTS

47 post-transplant patients reviewed between December 2014 and January 2016

23 patients commenced on Sodium supplements

9 patients commenced on Fludrocortisone

- Median patient age 8.3 (4.9-16.4) years
- Fludrocortisone given 22 (1- 80) months after transplant
- Patients followed up for 9 (2-20) months

- All patients stopped sodium bicarbonate

- All patients had a reduction or no increase in the total daily dose of sodium chloride

Table 1. Patients commenced on Fludrocortisone.

Patient	Diagnosis	Fludrocortisone (mcg)		NaHCO ₃ (g)		NaCl (g)	
		Initial dose	Max dose	Pre-Fludro	With Fludro	Pre-Fludro	With Fludro
1	Prune belly syndrome	25	100	1.9	0	2.7	1.8
2	Posterior urethral valves	25	150	2.0	0	1.8	0.9
3	Prune belly syndrome	25	150	6.7	0	4.0	0
4	Congenital nephrotic syndrome	50	75	3.0	0	1.8	1.8
5	Congenital renal hypoplasia	50	150	5.0	0	4.5	4.0
6	Congenital nephrotic syndrome	50	100	1.5	0	1.2	0.6
7	Congenital renal hypoplasia	50	100	-	-	-	-
8	Congenital renal hypoplasia	100	200	-	-	-	-
9	Chronic kidney disease stage 4	100	100	-	-	-	-

* Patients 1-6 were taking sodium supplements prior to commencing fludrocortisone. Patients 7-9 were commenced directly onto fludrocortisone. All patients were taking tacrolimus. Patients 3-6, 7 were also taking mycophenolate mofetil (MMF)

• Serum potassium levels lower on treatment, 5.2 vs 4.5 mmol/l, p= 0.04

• Renal function was unchanged: serum creatinine 57 vs 61 μ mol/l, p=1.00; eGFR 77.8 vs 81.7 ml/min/1.73m², p=0.45

• No significant increase in systolic BP, 107 vs 106 mmHg, p=0.81

• No side-effects secondary to the use of fludrocortisone reported in this cohort

Figure 1a. Serum potassium (mmol/l): Before Fludro and at max dose of Fludro

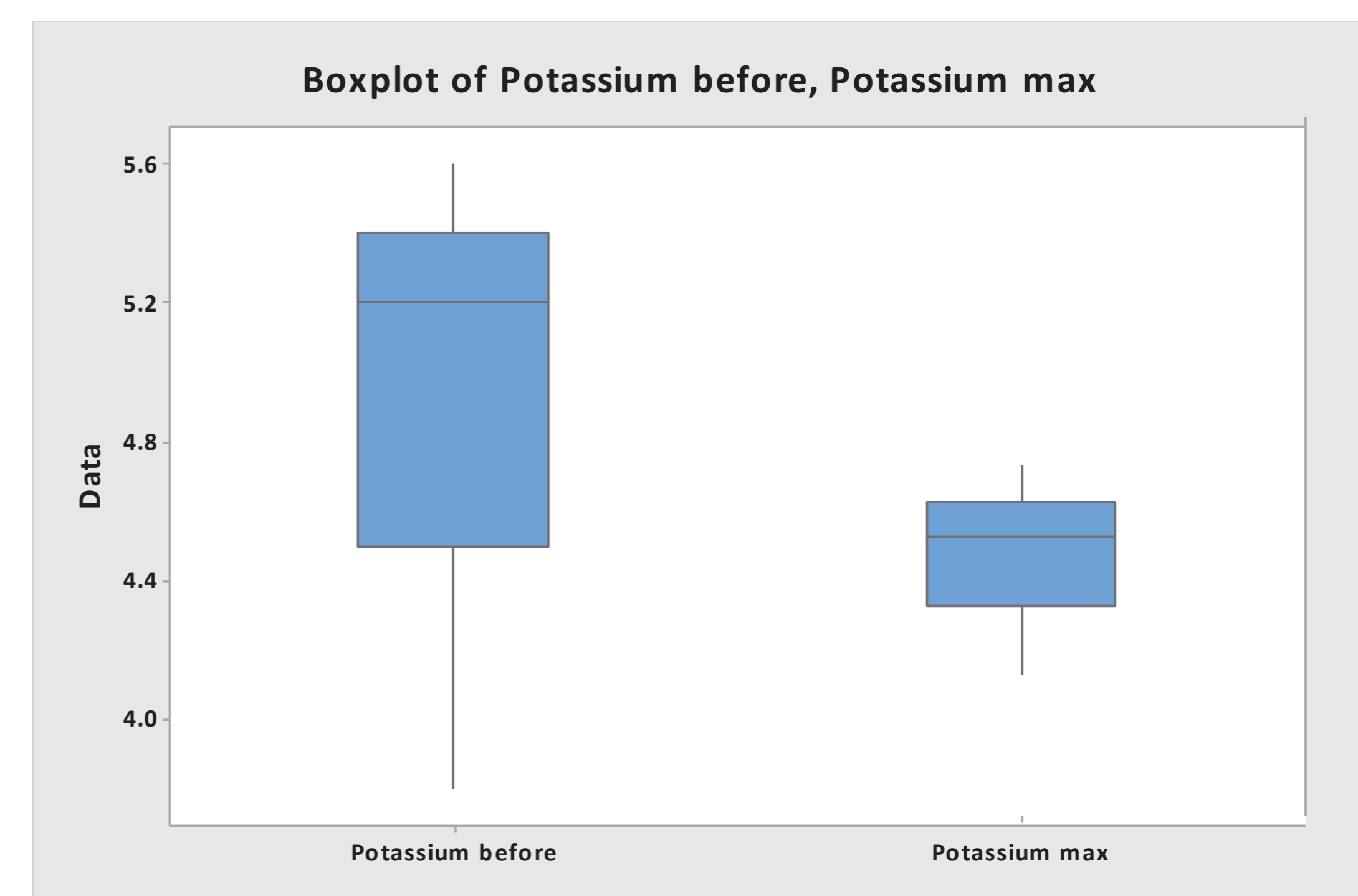


Figure 1b. Plasma creatinine (umol/l): Before Fludro and at max dose of Fludro

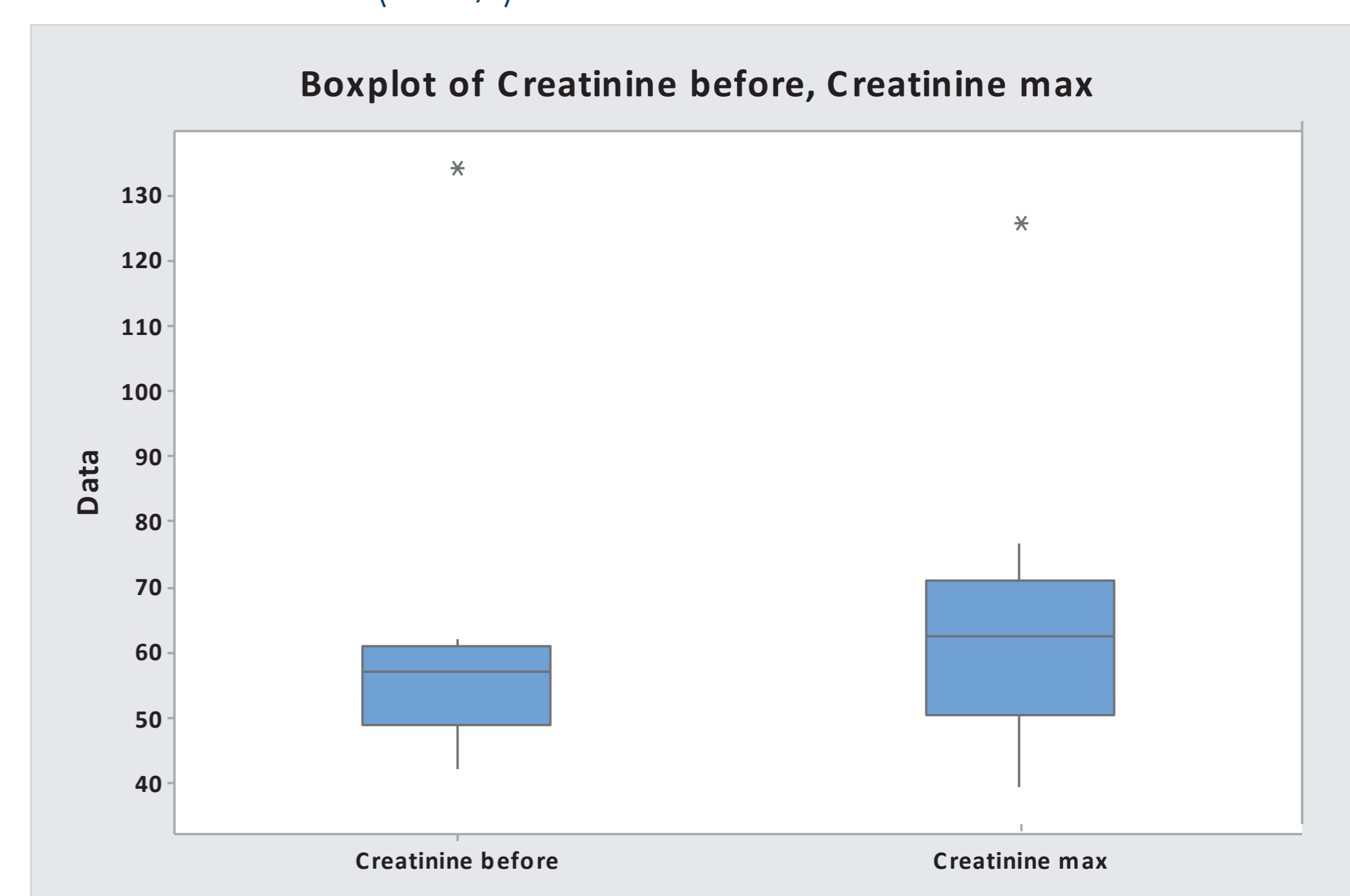
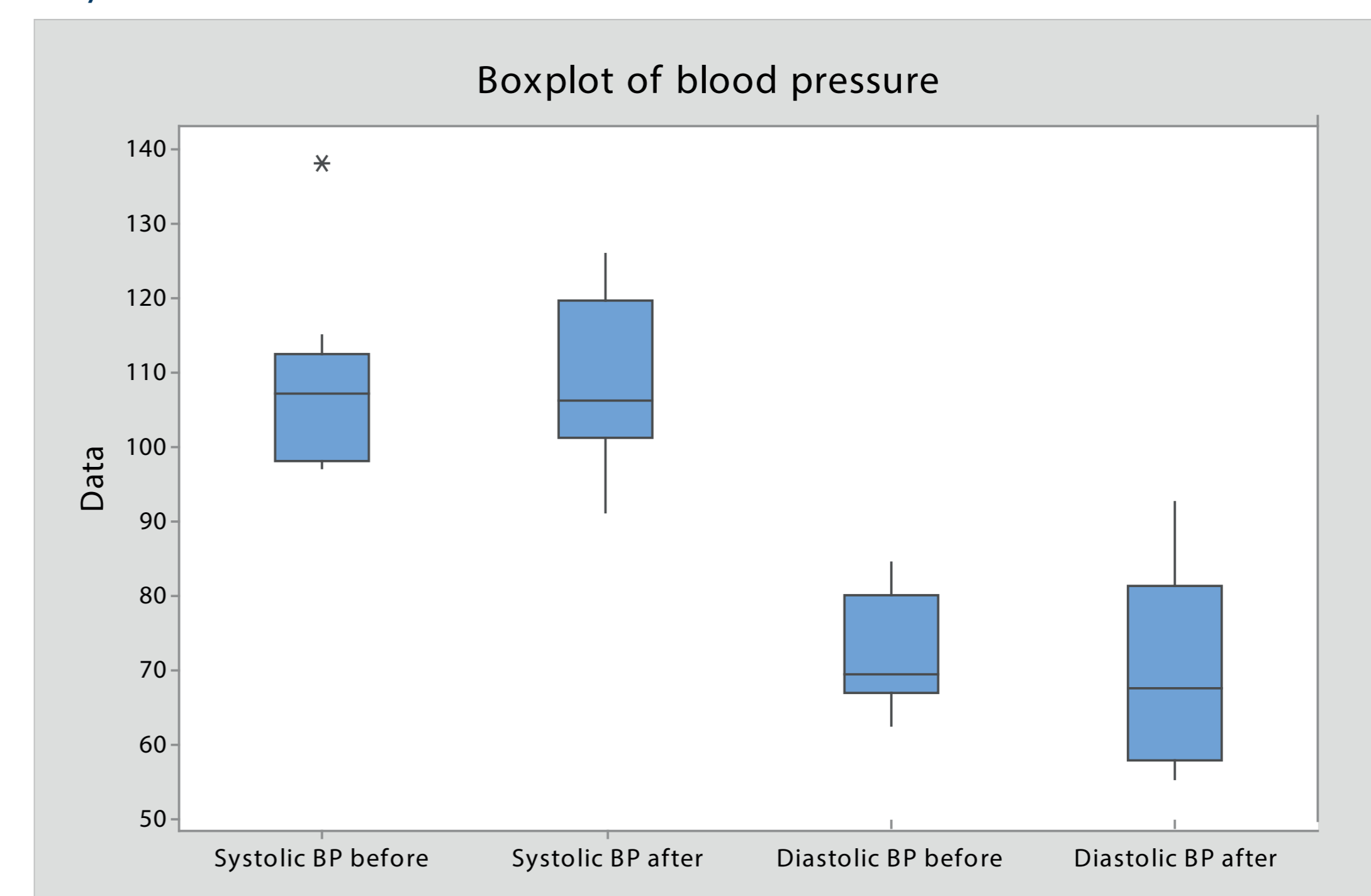


Figure 1c. Systolic BP: Before Fludro and at max dose of Fludro



CONCLUSIONS

- Fludrocortisone is an effective treatment for tubulopathies in children post renal transplantation.
- Fludrocortisone reduced the requirement for sodium bicarbonate and sodium chloride supplementation without a significant effect on renal function or blood pressure.
- The hypokalaemic properties of fludrocortisone are an added benefit as some patients in this cohort were on potassium restricted diets.
- This study adds to the limited evidence in the literature regarding the benefit of fludrocortisone.

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Disclosure of Interest: None