

No Impact of Mannitol on Renal Function after Partial Nephrectomy in Solitary Kidneys

Introduction and Objective: We administered Mannitol to patients with a solitary kidney during partial nephrectomy in order to protect their renal function. But the effect of Mannitol on postoperative renal function was not evident. We compared their postoperative renal function with that of patients who underwent partial nephrectomy without Mannitol.

Materials and Methods: We retrospectively reviewed the records of 32 patients who underwent open partial nephrectomy from March 1986 to March 2011 with a solitary kidney and they were followed-up postoperatively for at least a year. Of the 32 patients, Mannitol was administered to 13 (Group M+) and not to 19 patients (Group M-). We compared increase rate of postoperative serum creatinine and incidence of acute kidney injury (AKI) requiring dialysis during a year of follow-up between the two groups using Mann-Whitney U test. P-values of less than 0.05 were considered to indicate statistical significance.

Results: There were no significant differences in perioperative patient characteristics (table1), incidence of AKI requiring dialysis (1(7.7%) in Group M+ and 1(5.3%) in Group M-), and increase rate of postoperative serum creatinine at any time after partial nephrectomy (fig.1) between the two groups.

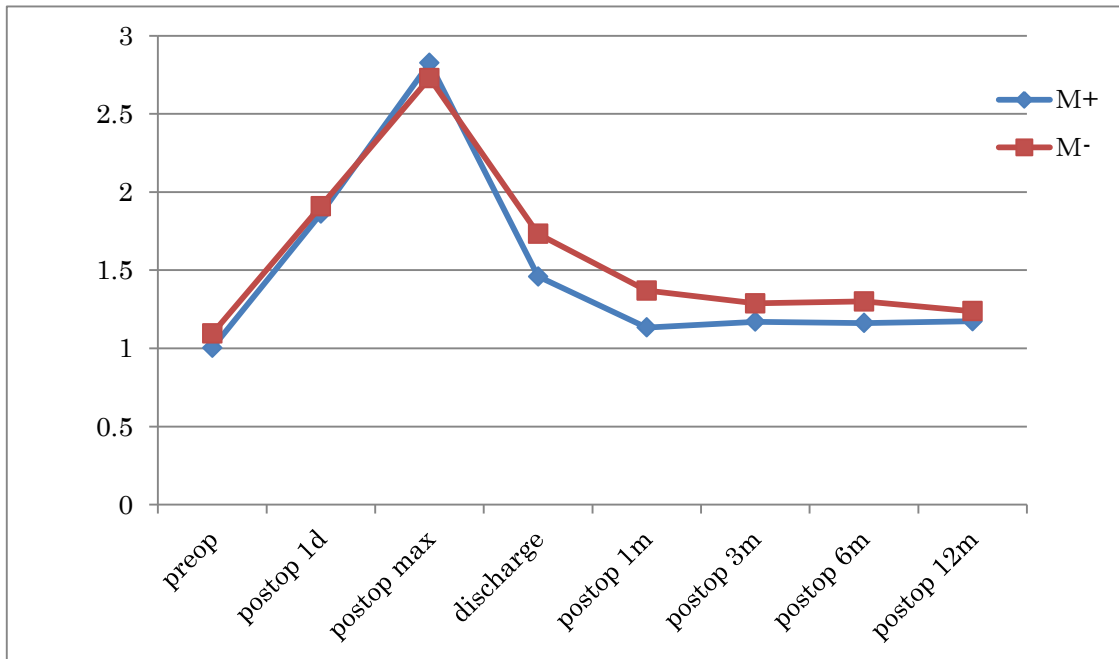
Conclusions: There is no advantage for postoperative renal function to be gained by administering Mannitol during open partial nephrectomy to patients with a solitary kidney.

Table1. Perioperative patient characteristics

	M+(n=13)	M-(n=19)	p value
age*	58.5±11.6	64.8±9.0	0.172
BMI*	23.2±2.0	24.4±3.9	0.291
preoperative serum creatinine(mg/dl) *	1.00±0.35	1.09±0.27	0.179
No. of diabetes(%)	2(15.4)	3(15.8)	0.976
No. of hypertension(%)	2(15.4)	7(36.8)	0.192
operative time(mins) *	268±94.4	273±61.9	0.502
cold ischemic time(mins) *	54.9±30.7	53.8±17.4	0.893
estimated blood loss(ml) *	452±375.0	438±628.5	0.49
resected tumor size(mm) *	33.0±15.0	32.7±17.2	0.667

*Mean±SD

Fig.1. Change of serum creatinine and increase rate of it after partial nephrectomy



increase rate of postoperative serum creatinine(%)						
	postop 1d	postop max	discharge	postop 1m	postop 3m	postop 6m
M+	79.8	152	40	13.4	16.8	15.1
M-	77.1	182.7	72.1	29.2	19.5	20.5
p value	0.687	0.744	0.833	0.399	0.985	0.788