

Optimal retrieval conditions in renal transplantation. A novel non-phosphate buffered preservation solution

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Background Normothermic preservation may improve the quality of warm ischaemic damaged kidneys. RS-I a novel non-phosphate buffered preservation solution can be used over a range of temperatures and conditions to preserve organs. The aim of this study was to test RS-I solution under different retrieval conditions to ascertain the optimal conditions for its use.

Methods Porcine kidneys were flushed with RS-I solution under 3 different conditions (n = 6), A: 4°C flush followed by 2hrs cold storage, B: 30°C flush followed immediately by a 4°C flush then 2hrs cold storage and C: 30°C flush followed by 2 hrs cold storage. An isolated preservation system (IOPS) was used to assess renal viability over a period of 6 hours after storage.

Results Kidneys flushed with RS-I at 30°C followed by cold storage demonstrated overall improved renal function and improved acid-base homeostasis compared to the 4°C or 30°C followed by 4°C flush groups (table 1).

	A	B	C	P
Cr	3676 ± 896	3948 ± 328	2333 ± 1066	0.0124*
CrCl	5.1 ± 3.9	3.7 ± 1.6	11.6 ± 11	0.6107
RBF	108 ± 70	100 ± 25	172 ± 51	0.036*

Table 1: Area under the curve of parameters shown. (Kruskal- Wallis test)

Conclusion This study demonstrates that simply flushing kidneys normothermically then storing them on ice with RS-I solution proved to be a better method of preservation. No beneficial effects were found when the solution was used solely under hypothermic conditions or combination with a normothermic flush.