

Evaluation of Blood Utilization Practices in Urology Patients at Tertiary Care Center from Southeastern Part of Rajasthan.

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Background: In developing countries, blood transfusion was decided by treating physicians. Development of Maximum surgical blood ordering schedule (MSBOS) for surgical procedure can mitigate over-ordering of blood. Implementation of MSBOS can cause cost reduction because of unnecessary compatibility tests.

AIM: This study aimed to assess the practices of blood requisite and transfusion in Urology patients.

Method: An institutional-based prospective study was conducted from October 2023 to March 2024, in Govt. medical college and hospital, Kota, Rajasthan. Socio-demographic data like age, sex, type of anesthesia, and type of surgeries were taken preoperatively. The number of cross-matched and transfused data were collected from blood center record. Efficacy of blood utilization was evaluated using the following indices like cross-match to transfusion ratio (C/T ratio), transfusion probability (%T), and transfusion index (TI); a ratio of 2.5 and below, A value of 30% and above, and values of 0.5 or more respectively were considered indicative of significant blood usage.

Result: In all procedures, among cross-matched blood units, 78.7% were unutilized. The overall blood transfusion indices result was C/T ratio, %T, and TI and utilization rate was 4.69, 24.3%, and 0.30, 21.3% respectively. Among urology surgery, transfusion indices were highly significant in Radical Prostatectomy with the value of C/T ratio 1.2 and TI 1.6. In some of the elective procedures, blood transfusion requirement was nil like in cystolithotripsy, urethroplasty, urethrolithotripsy, and Adrenalectomy as the C/T ratio were (∞), %T (0), and TI (0) values. Based on Mead's criterion except for radical prostatectomy and 80 nephrectomy the rest urology procedures (TURP, ADRENECTOMY, PYELOPLASTY, Cystolithotripsy) didn't need preoperative preparation of cross-matched blood and Type and Screen (T&S) is enough. Urology procedures, like Radical Prostatectomy and 84 Nephrectomy, have a transfusion probability of more than 30%, which means better utilization of cross-match blood. Therefore, in 86 these surgeries preoperative cross-matching can be done and the blood unit is released after the clinician's demands.

Conclusion: Preoperative grouping, screening, and hold (GSH) are sufficient for elective surgical procedures to decrease the wastage of valuable supplies.

Surgery	Anaesthesia	Utilization rate	C/T Ratio	% T	TI	MSBOS	Patent cross-match (304)	Patient transfused	Unit CROSMA TCH[441]	Unit TRANSFUSION [94]	Not Utilized
TURP	Spinal	10.7 %	9.3	15.6 %	0.15	0.22	64	10	93	10	89.3 %
PCNL	GA/ Spinal	19.2 %	5.19	24.6 %	0.24	0.36	126	31	161	31	80.8 %
NEPHECTOMY	GA	43.6 %	2.28	65.5 %	1.31	1.96	29	19	87	38	56.4%
CLT	Spinal/lo cal	0%	INFINITE	0%	0	0	5	0	6	0	100%
PYELOPLASTY	GA	28.5 %	3.5	25 %	0.25	0.37	40	10	35	10	71.5%
URETHROPLASTY	GA/ Spinal	0%	INFINITE	0%	0	0	20	0	29	0	100%
URETHROLITHOTRIPSY	GA/ Spinal	0%	INFINITE	0%	0	0	9	0	12	0	100%
RADICAL PROSTATECTOMY	GA/ Combined Spinal & Epidural	83.3 %	1.2	133%	1.6	2.4	3	4	6	5	16.7%
ADRENECTOMY others	GA	0%	INFINITE	0%	0	0	8	0	12	0	100%
Total		21.3 %	4.69	24.3 %	0.30	0.45	304	74	441	94	78.7%

Table 2 : Detail of Transfusion Indices in Various Urosurgery

	C/T Ratio	Transfusion Probability	Transfusion Index
Chalya PL et al 2016	5.8	15.9 %	0.2
Yangdon et al 2020	1	73.07 %	1.49
Umesh D et al 2014	5.95	67.7%	0.87
Rehan M et al 2016	1.3	76.7 %	0.9
Yazdi AP et al 2016	4.33	13.89 %	0.25
Haghpanah S et al 2021	3.96	32.8%	0.46
Our Study	4.69	24.3 %	0.3

Table 3: Blood transfusion indices in different type of urosurgery.