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Original Research Article

Do we need group and save for trans-urethral resection of bladder tumour and trans-urethral resection of the prostate procedures?

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ABSTRACT

Background: Trans-urethral resection of the prostate (TURP) and trans-urethral resection of bladder tumour (TURBT) are urological procedures essential for treating benign prostatic hyperplasia (BPH) and non-muscle invasive bladder cancer, respectively, these procedures may result in post-operative bleeding. In our hospital, pre-operative blood group and save is a routine to enhance patient safety. This study aims to evaluate transfusion rates and the potential cost benefits of limiting routine blood group and save.
Methods: We conducted a retrospective audit of patients undergoing TURP and TURBT between October 2018 and October 2020. Data was collected using theatre system records and blood bank information regarding transfusions.
Results: Out of 233 patients (average age 74), 141 underwent TURBT, 89 underwent TURP, and 3 underwent both simultaneously. Historical group and save were found in 214 (91.84%) patients, and 162 (69.5%) had same-day group and save. Only 2 patients (0.85%) necessitated transfusions.
Conclusions: The necessity for blood transfusion after TURP and TURBT is low, indicating that routine pre-operative group and save may not be essential for all patients. Tailoring this practice to high-risk individuals may reduce costs and relieve workloads. Enhanced surgical techniques and tools are likely contributors to these improved outcomes.

Keywords: Group and save, TURP, TURBT, Blood transfusion

INTRODUCTION

Trans-urethral resection of the prostate (TURP) and trans-urethral resection of bladder tumour (TURBT) are two of the most common urological procedures. TURP is used to treat bladder outlet obstruction due to benign prostatic hyperplasia (BPH).[1] While TURBT is used to treat non muscle invasive bladder cancer.[2] Post-operative bleeding is one of the complications with these procedures.

Pre-operative blood group and save used to be required for all patients undergoing TURP and TURBT in our hospital. In the United Kingdom (UK), the two-sample rule is a national guideline to improve patients' safety where the blood bank must ensure that there are two distinct samples from a patient that have generated the same blood group from both samples.[3]

There has been a decrease in the rates of blood transfusion in surgery in the past two decades due to better blood transfusion guidelines and measures like pre-operative assessment and identification of risk factors and intra-operative haemostasis optimisation.[4,5]

The primary aim of our study was to investigate the number of patients receiving blood transfusion undergoing TURP and TURBT procedures. Secondary aim was to look at cost benefit of avoiding routine blood group and save.

METHODS

This is a retrospective single-centre study. It was conducted at Medway NHS Trust Hospital, Kent, United Kingdom. The study period extended from October 2018 to October 2020. The study was registered with the Hospital Research and Ethics Committee Unit under audit number 2021.089N after meeting all required criteria. The study included all patients who underwent TURP or TURBT procedures within the study period.

For data collection, we approached the theatre administration and planning department, to provide patient details of all patients who had undergone the above procedures during this specified time. After analysis of the data provided, the blood bank was approached to provide details about the number of group and save as well as the number of transfusions in the same cohort of patients(cross-referencing). Patients' records were then reviewed via online hospital systems to gather comprehensive information, including any blood transfusions received. Statistical analysis involved compiling data into tables and graphs using Microsoft excel.

RESULTS

A total of 233 patients were identified. 141 patients underwent TURBT, 89 had TURP, and 3 patients had both procedures done for them at the same time. Out of 141 patients undergoing TURBT, 59 were females and rest were males as shown in Figure 1. The average age of the patients was 74. 214 (91.84%) patients had historic Group and Save, and 162 (69.5%) patients needed Group and Save on the day of the procedure pre-operatively. Results are shown in Table 1.

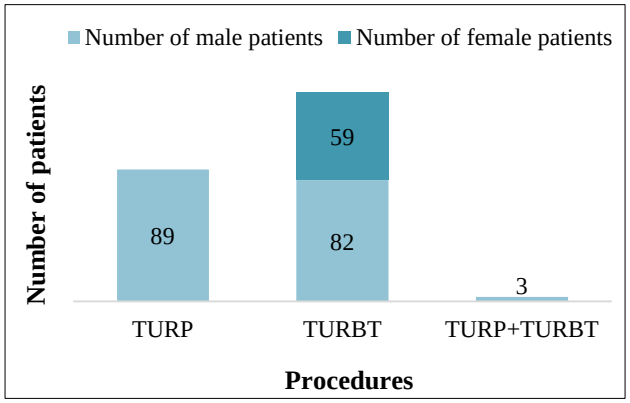

Figure 1: Procedures and number of patients.

Only 2 (0.85%) patients needed transfusion (Figure 2). One of the patients had an elective TURP and suprapubic catheter insertion with a pre-operative haemoglobin (Hb) of 130 g/l. The patient developed intra-operative and post-operative bleeding through the suprapubic catheter site and needed 1 unit of packed red blood cells on post-operative day 3. However, patient's prostate was more than 300 g and was very vascular as seen intra-operatively. The second patient was admitted for an elective TURP. The patient had history of chronic lymphocytic leukaemia and had 2 units of platelets pre-operatively due to thrombocytopenia. No TURBT patient received any transfusion.

Table 1: Demographics of patients having TURP or TURBT with group and save details.

Variables	Number of patients	Historical group and save (%)	On day group and save (%)
TURP	89	77 (86)	62 (69)
TURBT	141	134 (95)	97 (68)
Both	3	3 (100)	3 (100)
Sum	233	214	162

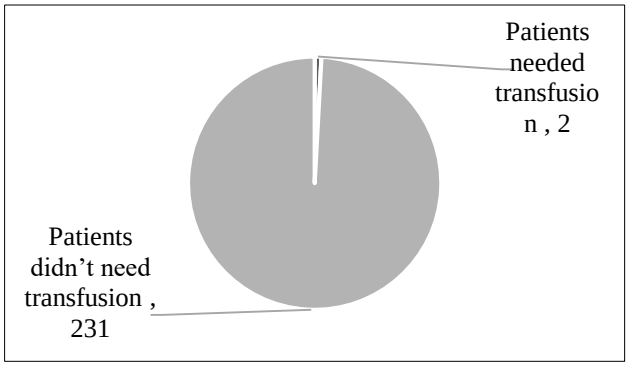

Figure 2: Transfusion rates for patients underwent TURP and TURBT.

DISCUSSION

Post-operative bleeding is a well-known complication of surgical procedures. Although urological surgical practice has evolved to a great extent in the form of endoscopic and robotic surgeries, however, post-operative bleeding still can be a challenge.[6,7] TURP is an endoscopic minimally invasive urological procedure used to treat bladder outlet obstruction.[1] TURBT is another minimally invasive endoscopic procedure which is used to diagnose bladder cancer and treat non-muscle invasive bladder cancer.[2] Currently, the transfusion rates for TURP are 2.0-7.0% and for TURBT it is 2.3%.[8,9] Transfusion risk factors for these operations include an enlarged prostate, large bladder tumour, coagulopathy, pre-operative infection, low pre-operative Hb and prolonged procedure.[10]

The practice of group and save and variable around the globe and usually based on local guidelines. In the UK, the practice is that if the blood bank has already a historic blood group registered on the laboratory information system, then on day one more group and save blood sample is required. If the patient has no previous records in the blood bank, then we need to repeat the group and save with a second sample using a specific request form and sample bottle provided by blood bank. The two samples

must come from separate venepuncture events and ideally should be carried out by two different people.[3] If blood is required in an emergency e.g. major haemorrhage protocol activation, the two-sample rule will still apply, however, the blood bank will only be able to issue group O red cell products and AB plasma products in the absence of a check group sample.

Our study shows that blood transfusion for TURBT and TURP patients is rare in our hospital. This is attributed to the improved operative techniques, improved instruments (e.g. optics and resectoscopes), and better blood transfusion guidelines.[4,5,8]

Each group and save costs around 18£-20£.[11,12] With 233 patients who had TURP and TURBT over 2 years, the total cost will be around 4,194£- 4,660£ over 2 years. Avoiding routine group and save and performing it only for high-risk patients has the implication of cutting down the costs and relieving some of the workload on the phlebotomist and junior doctors. O-negative uncross-matched blood is still available immediately if needed for emergency transfusion.

Limitations

This study is a retrospective, single-centre and the sample size is small. Further, the variations in surgical techniques, equipment, and patient demographics between institutions may affect the applicability of results elsewhere.

CONCLUSION

This study demonstrates that routine pre-operative blood group and save procedures for TURP and TURBT surgeries may not be necessary due to the low incidence of transfusions observed. By identifying and applying this practice only to high-risk patients, hospitals could significantly reduce costs and the demands on medical staff.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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