

Should Blood be Cross Matched for Every Transurethral Resection of the Prostate (TURP)?

M U KHAN S IQBAL

Department of Urology, Sheikh Zayed Hospital, Lahore.

Correspondence To: Mohammad Usman Khan

We reviewed the records of 64 patients who underwent a transurethral prostatectomy by one surgeon (MUK) between February 1995 and November 1995. The objective was to see if routine preoperative crossmatching blood was necessary for the operation. Intraoperative blood transfusion was required in only 9 (14%) patients. These patients had large prostates; the average amount resected in these 9 patients was 56.89 grams. On the whole, the average amount of prostate tissue resected was 25.6 grams. Routine preoperative crossmatching of blood is only required for patients who have large prostates on clinical and ultrasound examination.

Key words: Blood transfusion, TURP, prostatectomy.

With the aging population and an increased life expectancy prostatic surgery is now a major workload of any urologist. Benign prostatic hyperplasia (BPH) is probably the commonest benign human neoplasm. It was reported that the prevalence of significant BPH was 253 per 1000 in a sample of 705 men aged 40 to 79 years old¹. Histologically identifiable prostatic hyperplasia is present in approximately 50% of men by the age of 50 and 100% of men by the age of 80². Glynn et al calculated the chance of a 40 year old man requiring a prostatectomy as 29%³. Benign prostatic hyperplasia is the most frequent reason for elderly men undergoing surgery.

Surgical prostatectomy is the most commonly used method of relieving bladder outflow obstruction for benign or malignant disease. Because of low morbidity and mortality along with short hospital stay and minimal discomfort associated with transurethral surgery, endoscopic transurethral surgery is preferred by most patients. Approximately 90% of patients undergo a transurethral prostatectomy⁴.

It is the responsibility of every organization to monitor the quality of its activities and to identify areas where established practices could be altered in order to improve the quality of service and to cut down on wastage of resources, thus reducing cost. We reviewed our practice of routinely crossmatching blood for our patients undergoing transurethral prostatectomy (TURP).

Patients And Methods

Over a period of ten months, February 1995 to November 1995, 64 transurethral prostatectomies were performed by one consultant urological surgeon (MUK) in the Department of Urology at Sheikh Zayed Hospital, Federal Postgraduate Medical Institute, Lahore. The operations were carried out using Storz instruments (Karl Storz GmbH and Company, Tuttlingen, FRG). A continuous flow irrigation with 5% Dextrose solution was used and a standard operative technique was followed as described by Blandy⁵. The operative records of the patients were studied to see how many patients required intraoperative blood transfusions.

Preoperative Assessment

The patients were first seen in the outpatients department, where a detailed history was taken and a thorough physical examination along with a digital rectal examination (DRE) was carried out. On DRE, a clinical impression of the size and the approximate weight of the prostate were noted in the medical records. Preoperative investigations included a full blood count, serum creatinine, blood urea and a routine midstream examination of urine. An ultrasound examination of the abdomen, bladder, and prostate was also done to see if there was any other pathology, measurement of post micturition residue and estimation of prostatic size⁶. An intravenous urogram was ordered if the patient gave a history of haematuria.

On admission all the patients had routine blood count, serum electrolytes, serum creatinine and blood urea repeated along with a chest x-ray and an electrocardiogram (EGG). Every patient was asked to provide a donor who could donate one unit of blood, which would be transfused during the operation, if required. The operations were carried out under general, spinal or epidural anaesthesia.

Postoperative Tests

All the patients had their full blood count, serum urea and electrolytes, on the first post-operative day. If the haemoglobin was below 10 grams percent the patient was transfused in order to bring the haemoglobin to at least 10 grams percent.

Results

Age The average age of the patients was 66.5 years (range 50 to 99 years).

Weight of Resected prostate The average weight of resected prostate was 25.6 grams (range 10 to 90 grams).

Anaesthesia 27 patients (42.1%) were given general anaesthesia, 31 (48.4%) received spinal anaesthesia while only 6 (9.3%) patients had their operation under epidural anaesthesia.

Blood Transfusion Only 9 (14%) patients received a blood transfusion during surgery. All of them were transfused one unit of blood. The average age of the patients who

Blood Transfusion In TURP

received a transfusion was 72.3 years (60 to 99 years). The average weight of prostate resected was 56.8 grams (15 to 80 grams). Of these nine patients, 6 (66.6%) received general anaesthesia, 2 (22.2%) had epidural anaesthesia and only one (9.1%) had spinal anaesthesia.

Pre and Post-operative Haemoglobin The accurate assessment of blood loss was difficult. The mean drop in haemoglobin was calculated by subtracting the post-operative haemoglobin value from the pre-operative value. The average pre-operative haemoglobin was 12.9 grams and the average post-operative haemoglobin was 11.8 grams an average drop of 1.1 grams.

Histology Benign Prostatic Hyperplasia was reported in 52 (81.2%) patients while 6 (9.38%) had malignant prostates.

TABLE 1. Cost of one unit of blood:

Blood grouping	Rs. 60
Cross Matching	Rs. 100
HbsAg testing	Rs. 200
Test for Syphilis (RPR)	Rs. 50
Haemoglobin estimation	Rs. 16
Cost of blood bag	Rs. 50
Total	Rs. 476

Discussion

This study was carried out to see if it was really necessary to routinely cross match blood for transurethral prostatectomy (TURP) and to identify the patient population receiving a transfusion during surgery. In our society, people are reluctant to donate blood on a voluntary basis. The reason is lack of knowledge about the procedure and the widespread belief that it would cause weakness, thus resulting in ill health and loss of work.

Because of lack of voluntary donations, a national blood transfusion service has not developed. The reported incidence of haemorrhage requiring a transfusion during a transurethral prostatectomy has been reported to be 6.5-22%⁷. It was our policy to cross match one unit of blood preoperatively for every patient who was to undergo a TURP. If the patient or his relatives were unable to provide a unit of blood, then the operation was postponed. This resulted in wastage of resources and an added expense to the patient and the hospital.

It was observed that many patients did not receive any blood during a transurethral prostatectomy. The blood that was provided was used by the blood bank for other patients or emergency situations. The hospital still incurred at least the cost of a cross match. (Table 1) This cost goes up if the blood is also screened for the human immunodeficiency virus (HIV). Secondly if a patient has a rare blood group the cost increases by Rs. 60 (cost of blood grouping) for every donor whose blood does not match that of the recipient. One might have to group ten to twenty donors for one patient of Blood group O negative, thus raising the cost considerably. Other methods of intraoperative transfusions as autologous blood transfusion where the patient donated his own blood before surgery^{8,11}, and intraoperative blood recovery from the

irrigating fluid in TURP and then transfusing it back to the patient, has been described^{9,10} by different authors. These methods avoid blood transfusion reactions, which can occur in homologous transfusions as well as the risk of transmission of serious infections like hepatitis B and the human immunodeficiency virus (HIV). These methods are ideal in our country, but the equipment for extracting blood from the irrigation fluid and transfusing it back to the patient are not available at present. A change of attitude of the people towards blood donation will lead to autologous transfusions.

Our experience of 14% patients requiring a blood transfusion is similar to that reported by other authors^{8,11,12}. Our results of a positive correlation among resected prostate weight and blood loss is similar to that reported in the literature¹¹. With digital rectal examination and ultrasound measurement of prostate weight, the amount of blood loss can be estimated preoperatively. The blood needed for transfusion during surgery can then be estimated.

We have now changed our policy of routinely crossmatching blood for TURP. Any patient who has an estimated prostate size of more than 50 grams on digital rectal examination and ultrasound examination has at least one unit of blood crossmatched preoperatively.

Conclusions

We recommend that all patients, who have symptoms of prostatic obstruction and are candidates for transurethral resection of the prostate, must have a digital rectal examination and an ultrasound scan to access the size of the prostate. Only after these examinations if the prostatic size is considered to be 50 grams or more, blood should be crossmatched prior to surgery.

References

1. Garraway, W.M., Collins, G.N. and Lee R.J. (1991) High prevalence of benign prostatic hyperplasia in the community. *Lancet*, 338, 496-471.
2. Isaacs J.T. (1990) Importance of the natural history of benign prostatic hyperplasia in the evaluation of pharmacologic intervention. *Prostate (Suppl)* 3, 1-7.
3. Glynn, R.J., Campion, E.W., Bouchard, G.R. et al. (1985). The development of benign prostatic hyperplasia among volunteers in the normative aging study. *Am J Epidemiol*, 121, 78-80.
4. Mebust, W.K. (1988) Surgical management of benign prostatic obstruction. *Urology (Suppl)*, 32, 12-15.
5. Blandy J.P. *Transurethral Resection* 2nd Edition. London
6. Pittman Medical 1978 6. Wilkinson, A.G. and Wild, S.R. Is preoperative imaging of the urinary tract worthwhile in the assessment of prostatism. *Br. Journal of Urol*, 1992, 70, 53-57.
7. Schools, H. Martin, W. Engelmann, U. Senge, T. TULIP Transurethral ultrasound controlled laser induced prostatectomy an alternative to TURP. *Urology A*, 1993 May, 32(3): 225-31.
8. Ihara, H. Yabumoto, H. Shima, J. Mori, Y. Ikoma, F. Predeposit autologous blood transfusion in elderly patients undergoing transurethral resection of the prostate. *Int Urol Nephrol*, 1993 25, 571-6.

9. Osawa, T. Nakamura S. Imai T. Intraoperative blood recovery in transurethral resection of prostate (TURP). *Nippon Hinyokika Gakkai Zasshi*. 1992 Aug. 83(8): 1276-83.
10. Osawa, T. Nakamura, S. Imai, T. Autologous blood transfusion in transurethral resection of prostate (TURP). *Nippon Hinyokika Gakkai Zasshi*. 1992 Oct: 83(10) 1615-21. Maki, Y. Autologous blood transfusion in transurethral resection of
11. the prostate. *Nippon Hinyokika Gakkai Zasshi*. 1993 Jul: 84(7): 1219-26
12. Yeoh, N. Inbasegaran, K. A personal experience with the first 100 TURP at the Penang General Hospital. *Med J Malaysia*. 1989 Jun: 44(2): 129-33.
13. Lewis, D.C. Burgess, N.A. Hudd, C. and Matthew, P.N. Open or transurethral surgery for the large prostate gland. *Br Jour Urol* (1992).69, 598 602