**Determinants of Peri-Operative Blood Transfusion In A Contemporary Series Of Open Prostatectomy For Benign Prostate Hyperplasia**

**Author: Mathew Y. Kyei**

 **Department of surgery, University of Ghana Medical School P.O. Box 4236 Accra.**

**Background:**

An increased blood transfusion rate in open prostatectomy for benign prostate hypertrophy (BPH) is well noted. In developing countries where open prostatectomy is currently mostly practiced, assess to blood for blood transfusion is limited as there is less voluntary blood donation. These surgeries are sometimes unduly delayed on account of lack of acceptable replacement donors. Blood transfusion also carriers risk of transfusion reactions and disease dissemination as well as a substantial economic cost**.** Being able to determine the factors that predispose a patient to receiving blood transfusion peri-operatively at open prostatectomy will enable a more rational blood product management for the procedure.

**Aim:** To determine the factors predisposing to peri-operative blood transfusion in open prostatectomy for BPH that will subsequently form a basis towards blood product management for the procedure.

**Methodology:** This was a prospective study of consecutive patients who underwent open prostatectomy for benign prostate hyperplasia from January 2010 to June 2012 at the Urology Unit of the Korle Bu Teaching Hospital Accra, Ghana.

The patients scheduled for open prostatectomy for BPH underwent anaesthetic evaluation with the determination of the hemoglobin level and the presence of co-morbidities. The patients who were found fit and consented to undergo either transvesical open prostatectomy or retropubic open prostatectomy and the study were considered. The additional data collected and imputed into the proforma included the case type- elective or emergency, the indication for the surgery, the anaesthetic method used, the status of the operating surgeon- consultant or resident, the duration of surgery, prostate weight , and the estimated blood loss.

 Also documented was the units of blood transfused  peri- operatively. The data was analyzed using the statistical package for the social sciences (SPSS) version 16.

**Results:**

One hundred and forty-nine patients were studied. The mean age of the patients was 69.9 ± 9.0 yrs (range 48- 92yrs). One hundred and thirty (87.2%) of the cases were elective cases while 19 (12.8%) were emergencies. With regards to the indication for the prostatectomy, 66.4% was as a result of refractory retention of urine, 22.1% haematuria due to BPH, 6.7% severe lower urinary tract symptoms, 3.4% BPH with associated bladder calculi, 0.7% BPH with obstructive uropathy and 0.7% refractory retention with stuck urethral catheter. The mean pre-operative haemoglobin level was 12.0 ± 2.4g/dl (range 3.1-16.4g/dl). With regards to the presence of co-morbidities, 83 (55.7%) of the patients had no co-morbidities while 66 (44.3%) had associated co-morbidities such as hypertension and diabetes mellitus.

Seventy (47.0%) of the surgeries were performed by residents while 79 (53.0%) of the surgeries were by consultants. Open transvesical prostatectomy was the operative method used in 133(89.3%) with retropubic prostatectomy in 16 (10.7%). The mean operative time was 102.3 ± 31.6mins (range 35.0-230.0mins) with 123(82.6%) of the surgeries done under spinal anesthesia, 20 (13.4%) under general anaesthesia and 6 (4.0%) with epidural anaesthesia. The mean operative prostate weightwas 112.5 ± 91.1g (range 15-550g) and the estimated blood loss ranged from 100-2400ml.

The peri-operative blood transfusion rate was 21.5% (32/149), a total of 68 units of blood were transfused. The transfusion rate as seen at various haemoglobin levels were, 84.6% in patients with Hb level ≤ 8.0g/dl, 75% (Hb8.1-9.0), 60% (Hb 9.1-10.0), 25% (Hb 10.1-11.0), 10% (Hb 11.1-12.0), 15.4% (12.1-13.0), 2.8% (Hb 13.1-14.0) and no transfusion in patients with Hb>14.0g/dl.

 There was a significantly higher blood transfusion rate in emergencies cases compared to elective cases (Χ2 =42.651, p<0.001) and in patients without co-morbidities compared to patients with co-morbiditeis (Χ2 =4.596, p< 0.05). Compared to spinal anaesthesia, patients that underwent the procedure under general anaesthesia had a higher blood transfusion rate (Χ2 = 7.585, p<.05).

In a logistic regression analysis, the only significant associations with blood transfusion in open prostatectomy were the duration of surgery (.042), co-morbidity (.006) and the pre-operative haemoglobin level (.000).

**Conclusion:**

The intra-operative blood transfusion rate in open prostatectomy for BPH in this series was 21.5%. Blood transfusion rate was associated with and significantly higher in emergency surgeries, in the absence of co-morbidities and with procedures done under general anaesthesia. Using logistic regression analysis, the main determinants of transfusion were the duration of surgery, comorbidity and the pre-operative haemoglobin level.