

## Use of Vasopressin in Vaginal Hysterectomy

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**Abstract:****Background:** Morbidity of the patient can be decreased by reducing the intraoperative blood loss in major surgery like hysterectomy with use of vasoconstrictive drug, vasopressin.**Materials and Methods:** This prospective study was conducted in department of Nalanda medical college and hospital, Patna, Bihar. About 60 cases undergoing elective vaginal hysterectomy were selected and divided into two groups; 1<sup>st</sup> group A was taken as control while, in group B, vasopressin in diluted form was injected pre-operatively.**Results:** There was no significant difference in parameters like duration of surgery, change in vitals during surgery and postoperative complications in two groups. However, markable difference seen in amount of blood loss in two groups.**Conclusion:** Use of vasopressin pre-operatively can reduce morbidity in patients undergoing vaginal hysterectomy by controlling amount of blood loss intraoperatively.**Keywords:** Hysterectomy, Morbidity, Vasopressin.

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**Introduction**

Vaginal hysterectomy is a surgical removal of the uterus through vaginal route. It is the safest and cost-effective performed gynecological surgery. Less amount of blood loss in surgery is essential to reduce morbidity and mortality. Besides this, profound bleeding during surgery can hinder the sight of the operative field, resulting in complications. In previous studies, drug which has been used to control the blood loss during surgery are vasopressin and norepinephrine. Julian TM *et al.* [1] in 1983, first reported the use of vasoconstrictors in an attempt to lessen the blood loss during hysterectomies. Vasopressin is a vasoconstrictive drug having a short half-life of 20 min and is most preferred drug in gynecological surgeries to decrease intra and post-operative bleeding and to improve surgical field visualization. Repeat dose after 45-60 min is safe. Vasopressin does not have direct effects on cardiac contractility as epinephrine does. It causes vasoconstriction through its action on the vasopressin (V1) receptor and acts as antidiuretic drug through its action on V2 receptor in the kidney. The chief mechanism by which vasopressin reduces bleeding is vasoconstriction [2]. The aim of this study was to analyze the effect of vasopressin in the patients undergoing elective vaginal hysterectomy in order to reduce the

blood loss during surgery and to decrease the morbidity of the patient

**Materials and Methods**

This prospective case-control study was conducted on 60 female patients undergoing elective vaginal hysterectomy at department of obstetrics and gynaecology, Nalanda medical college and hospital, Patna, Bihar, between April 2018 to April 2019. The age of this study population was between 40-65 years. Before starting data collection written informed consent about the participation in the study was taken from the subjects. Subjects with a history of smoking, hypertension, ischemic heart disease, severe liver disease, peripheral vascular disease, epilepsy, elevated serum creatinine, asthma, and history of recurrent migraines was excluded from the study. Detailed medical and obstetrical history of the patients taken. Thorough general and obstetrical examination was done. Pre-operative workup and necessary investigations were done. After proper pre-operative checkup, patients were taken for surgery. The patients were divided into two groups each consisting of 30 subjects. In Group A patients (control group), no vasopressin used. In Group B patients, dilute solution of vasopressin 20 units in 100 ml

normal saline was injected at the cervicovaginal junction.

**Following parameters were observed during surgery:**

1. Duration of surgery.
2. Blood loss during surgery (mops and gauze pieces used during surgery were weighed before and after the operation).
3. Pre and postoperative haemoglobin level.
4. Blood pressure monitored (pre-operatively and intra-operatively).

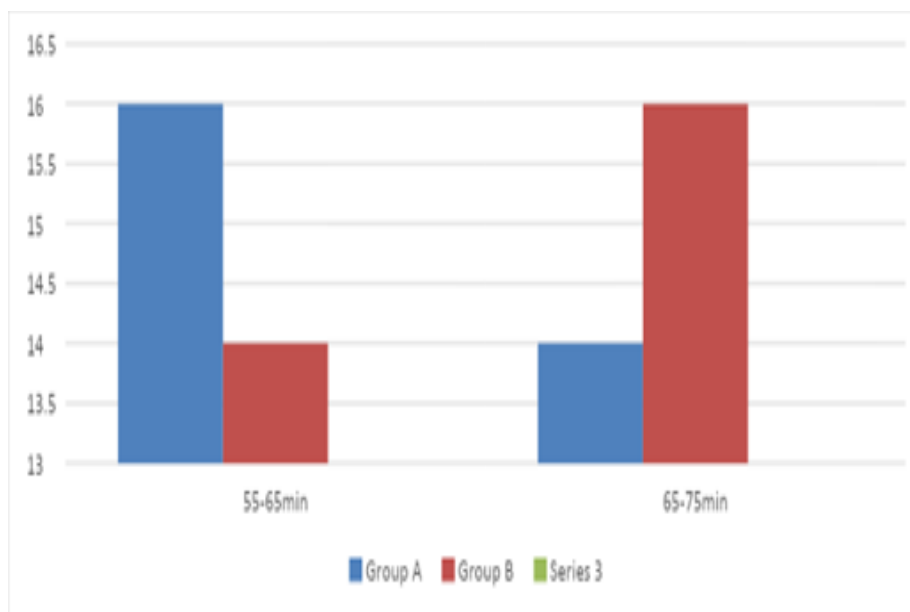
**Results**

Among 60 patients who underwent vaginal hysterectomy, maximum number of patients belonged to 40-65years of age. The mean age in control and study group were 48.72yrs and 49.86yrs. There was insignificant difference in mean age between two groups. Maximum number of patients were multipara in both groups.

The total time taken in vaginal hysterectomy in both groups was between 55 to 75minutes. The average time required in control and study group were shown in table 1 and fig.1

**Table 1. Distribution of cases according to duration of surgery**

Duration(min)	Group A (%)	Group B (%)
55 - 65	16(53.33%)	14(46.66%)
65 - 75	14(46.66%)	16(53.33%)



**Figure 1: Comparison of duration of surgery in both group**

The average time calculated in both group A and group B were 55.68min and 52.88min, respectively. P value (0.09) calculated was insignificant. This showed insignificant difference in duration of surgery in both groups.

In control group, the amount of blood loss in patients was between 200 – 250ml while, in study group, it

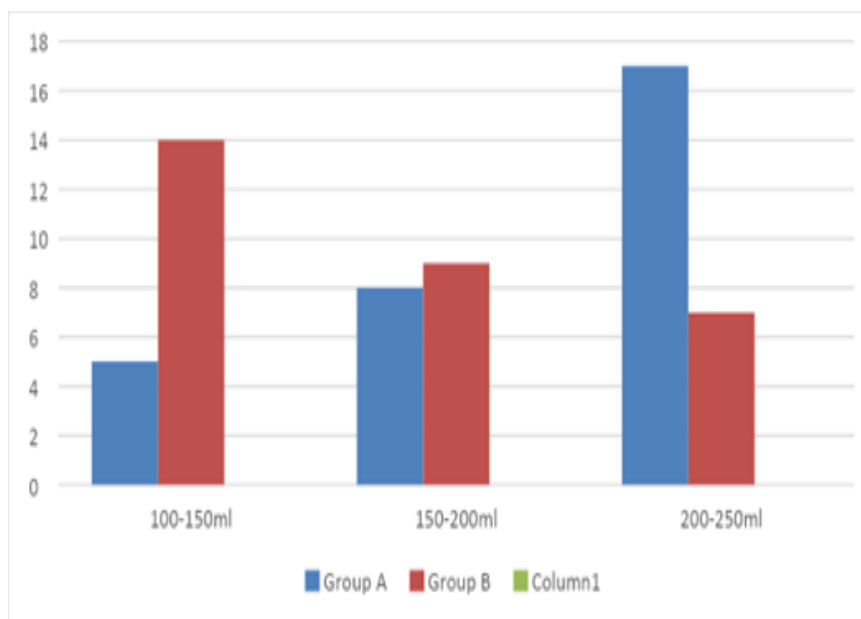
was between 100 – 150 ml.

From table 2, average blood loss(ml) mean ±SD calculated.

In control group, it was 210.62±20.18 while, in study group, it was 139.32±19.42. p value was 0.0001 which was significant.

**Table 2: Distribution of cases according to blood loss during VH**

Amount of blood loss(ml)	Group A	Group B
100 - 150	5	14
150 – 200	8	9
200 - 250	17	7



**Figure 2: Comparison of blood loss during surgery**

Pre-op haemoglobin in all patients undergoing vaginal hysterectomy in both control and case group were between 10 – 14 gm/dl. Postoperatively, there was insignificant difference in haemoglobin level in both group (table 3)

**Table 3: Comparison of Postop haemoglobin level of cases in both group**

Post- op Hb(gm/dl)	Control	Study
9 - 10	12	17
8 - 9	18	13

Vasopressin infiltration leads to rise in blood pressure. Mean rise in blood pressure was 15.68mmHg after 5 minutes of vasopressin infiltration in studygroup as compared to 7.68mmHg in control group (table 4).

**Table 4: Distribution of cases according to pre and intra-operative mean bloodpressure**

Group	Preop mean BP(mmHg)	Intraop mean BP(mmHg)	
		5min	10min
A	108.68	102	100.20
B	110.52	128.62	124.52

**Discussion**

Surgery on the uterus often causes significant violaceous blood welling ominously from open veins and scarlet blood squirting vigourously from transected arteries raising the heart rate of patient and surgeons.

To reduce blood loss during gynaecological operation, vasoconstrictors have been used to decrease blood loss as in myomectomy and hysterectomy. In randomized clinical trials, injection of vasopressin has demonstrated to reduce blood loss in several gynaecological operations [3,4,5]. A persistent concern, however, is that injection of vasopressin is occasionally associated with bradycardia and cardiac arrest especially if injection is injected into blood vessel. So, optimal dilution and optimal dose of vasopressin will reduce blood loss and minimize risk of cardiac arrest.

A study done by Ascher et al [6], on 58 women undergoing vaginal hysterectomy. Pre-op vasopressin was given intra-cervically to minimize blood loss. Vasopressin group patients lost significantly less

blood (145.3ml compared to control,266.4). Also, rise in mean blood pressure was noted with vasopressin injection. Less blood loss and rise in mean blood pressure with vasopressin injection preoperatively at cervicovaginal junction was also observed in our study, similar to Ascher’s study. Okin CR et al [7] also mentioned in his study, less blood loss with vasopressin injection preoperatively during abdominal hysterectomy, which was similar to this study.

Holmes et al and P. Singh mentioned in their studies role of vasopressin in decreasing blood loss in gynaecological surgery in study group compared to control [8,9].

**Conclusion**

The preoperative injection of intracervical vasopressin leads to decreased blood loss during vaginal hysterectomy without increasing morbidity. Vasopressin should be used in dilution and at a low total dosage.

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