

## Original Article

### Management of Cases of Laproscopic Cholecystectomy- A Clinical Study

Lt. Col. (Dr) Pavan Banga<sup>1</sup>, Mohd Rehan Rashid<sup>2</sup>

<sup>1</sup>Head of Department of Surgery, Command Hospital Lucknow, Uttar Pradesh, India,

<sup>2</sup>Associate Professor, Department of Surgery Hind Institute of Medical Sciences, Ataria, Sitapur, Uttar Pradesh, India

#### ABSTRACT:

**Background:** Laproscopic cholecystectomy is the treatment of choice for cholelithiasis. Sometimes even after removal of gall bladder few complications arises. The present study was conducted to assess the utility of tranexamic acid in laparoscopic cholecystectomy. **Materials & Methods:** The present study was conducted on 52 patients of both genders (males- 38, females- 14). Patients were divided into 2 groups. Group I received intravenous dose 20 mg/kg of tranexamic acid at induction of anesthesia. Group II did not receive any tranexamic acid. mean hospital stay was 3.2 days in group I and 3.4 days in group II, drain fluid hemoglobin was 0.92 gm% in group I and 0.98 gm% in group II, mean pulse rate 24 hours after surgery was 78.2 beats/ min in group I and 80.4 beats/min in group II. Mean change in hemoglobin. **Results:** Age group 20-40 years had 18 males and 7 females, 40-60 years had 12 males and 6 females and >60 years had 8 males and 1 female. The difference was significant (P<0.05). Common comorbidities was smoking seen in 12 in group I and 10 in group II, diabetes in 17 cases in group I and 6 in group II, hypertension seen 15 cases in group I and 7 in group II, alcoholic seen 5 in group I and 6 in group II and drug addiction 1 in both groups. Mean hospital stay was 3.2 days in group I and 3.4 days in group II, drain fluid hemoglobin was 0.92 gm% in group I and 0.98 gm% in group II, mean pulse rate 24 hours after surgery was 78.2 beats/ min in group I and 80.4 beats/min in group II. Mean change in hemoglobin was 0.28 gm% in group I and 0.30 gm% in group II. **Conclusion:** The blood loss is can be well controlled by tranexamic acid. Laproscopic cholecystectomy is widely used surgical procedure in cases of cholelithiasis.

**Key words:** Cholecystitis, Diabetes, Tranexamic acid.

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**Corresponding author:** Dr. Mohd Rehan Rashid, Associate Professor, Department of Surgery Hind Institute of Medical Sciences, Ataria, Sitapur, Uttar Pradesh, India

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#### INTRODUCTION

Cholelithiasis is calcification that can occur in any portion of biliary tract. It is most common disease affecting the bile tract. The incidence ranges from 12% to 24% of the world population. The incidence is more in females as compared to males. There is high prevalence among younger age group. They are most prevalent in 4th and 5th decade of life. Twenty to thirty percent of western people aged 65 and around 10% of non-western population same ages have been affected by gallstones. Most of the cases remain asymptomatic and hence undiagnosed. So the exact prevalence becomes difficult. The traditional risk factors for gallstone disease (GSD) are the four 'F's- 'female, fat, forty and fertile' - but age is additional risk factors in western countries.<sup>1</sup>

Laparoscopic cholecystectomy has established itself firmly as the "gold standard" for the treatment of gallstone disease. Studies have paying attention to most solely on the biliary complications of this procedure. Other complications such as significant hemorrhage during laparoscopic cholecystectomy are common too.<sup>2</sup> Laproscopic cholecystectomy is the treatment of choice for cholelithiasis. Sometimes even after removal of gall bladder few complications arises. The complications associated with gallstone disease (GSD) such as cholecystitis, pancreatitis, and cholangitis have become significant public health issues imposing a great economic burden worldwide.<sup>3</sup> Tranexamic acid is a synthetic antifibrinolytic drug most effectively in patients with cholelithiasis. The mechanism of action for synthetic antifibrinolytic is competitive blockade of the lysine binding sites of plasminogen, plasmin, and tissue plasminogen activator. The reversible blockade impedes

fibrinolysis and blood clot degradation.<sup>4</sup>The present study was conducted to assess the utility of tranexamic acid in laparoscopic cholecystectomy.

**MATERIALS & METHODS**

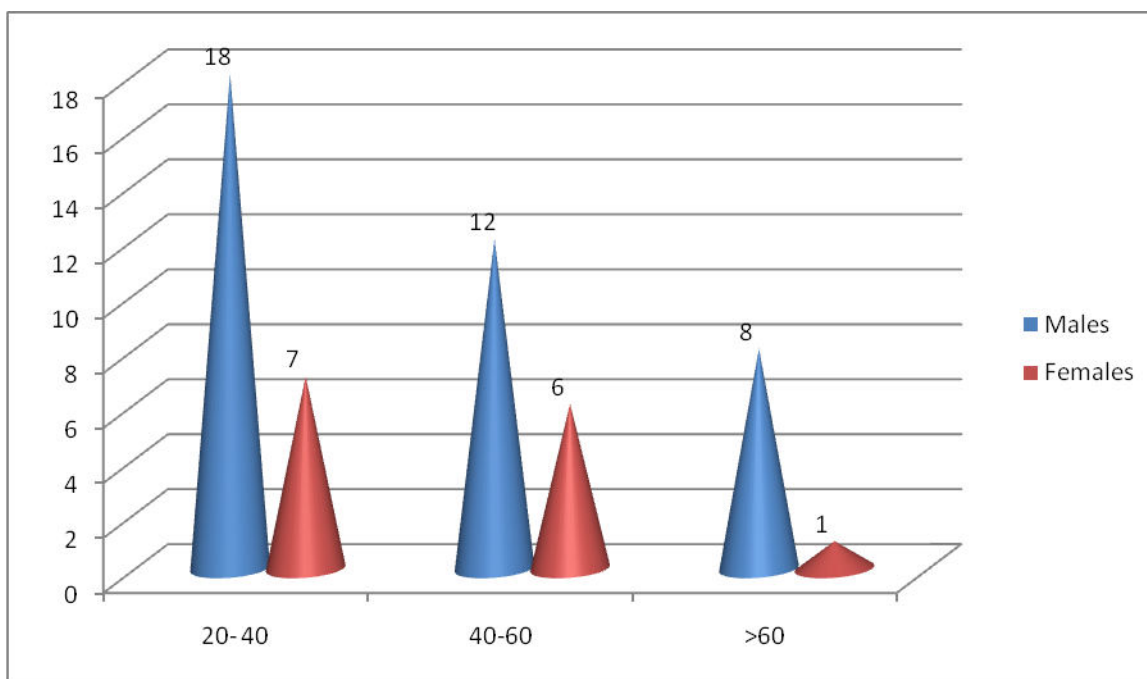
The present study comprised of 52 patients of both genders (males- 38, females- 14). All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institute ethical committee. General information such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Group I received intravenous dose 20 mg/kg of tranexamic acid at

induction of anesthesia. Group II did not receive any tranexamic acid. All cases were performed by laparoscopic surgeons.

All patients underwent estimation of hemoglobin (Hb), TLC, DLC, CT FBS, liver function tests, urine complete examination, and abdominal Ultrasonography (USG). The standard 4-port laparoscopic cholecystectomy was performed in all patients. All parameters such as heart rate, blood pressure were checked at 1 h, 24 h, and 48 h after surgery. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Graph I Age wise distribution of patients**



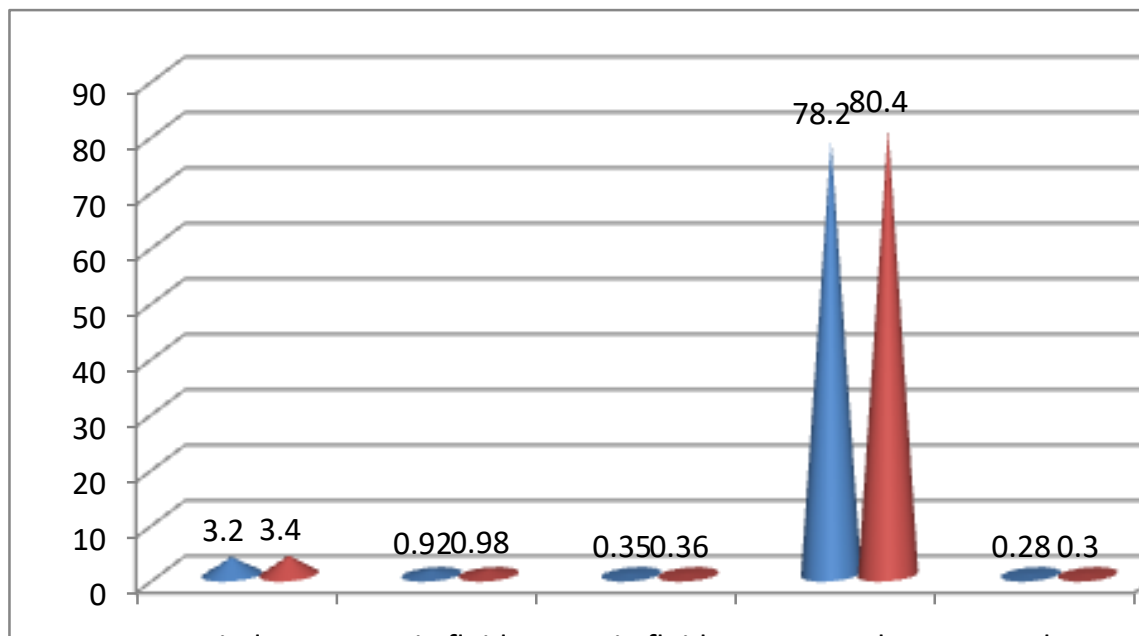
Graph I shows that age group 20-40 years had 18 males and 7 females, 40-60 years had 12 males and 6 females and >60 years had 8 males and 1 female. The difference was significant (P<0.05).

**Table I Co morbidities in patients**

| Co morbidities   | Group I | Group II | P value |
|------------------|---------|----------|---------|
| Smoking          | 12      | 10       | 0.01    |
| Diabetes         | 17      | 6        |         |
| Hypertension     | 15      | 7        |         |
| Alcohol          | 5       | 6        |         |
| Drug deaddiction | 1       | 1        |         |

Table I shows that common comorbidities was smoking seen in 12 in group I and 10 in group II, diabetes in 17 cases in group I and 6 in group II, hypertension seen 15 cases in group I and 7 in group II, alcoholic seen 5 in group I and 6 in group II and drug addiction 1 in both groups. The difference was significant (P<0.05).

**Graph I Parameters in both groups**



Graph II shows that mean hospital stay was 3.2 days in group I and 3.4 days in group II, drain fluid hemoglobin was 0.92 gm% in group I and 0.98 gm% in group II, mean pulse rate 24 hours after surgery was 78.2 beats/ min in group I and 80.4 beats/min in group II. Mean change in hemoglobin was 0.28 gm% in group I and 0.30 gm% in group II.

**DISCUSSION**

The advent of laparoscopic cholecystectomy has been a significant milestone, not only in the treatment of gallstone disease but also in the evolution of minimal access surgical approach. The principle is to minimize the trauma of access without compromising the exposure of the surgical field. Laparoscopic cholecystectomy has now replaced open cholecystectomy as the first-choice of treatment for gallstones and inflammation of the gallbladder unless there are contraindications to the laparoscopic approach. This is because open surgery leaves the patient more prone to infection. Sometimes, a laparoscopic cholecystectomy will be converted to an open cholecystectomy for technical reasons or safety.<sup>5</sup>

In present study patients were divided into 2 groups. Group I received intravenous dose 20 mg/kg of tranexamic acid at induction of anesthesia. Group II did not receive any tranexamic acid. Tranexamic acid was discovered in 1962 by Utako Okamoto. Tranexamic acid is available as a generic medication. Tranexamic acid (TXA) is a medication used to treat or prevent excessive blood loss from major trauma, post partum bleeding, surgery, tooth removal, nose bleeds, and heavy menstruation.<sup>6</sup>

In present study, we found that common comorbidities was smoking seen in 12 in group I and 10 in group II, diabetes

in 17 cases in group I and 6 in group II, hypertension seen 15 cases in group I and 7 in group II, alcoholic seen 5 in group I and 6 in group II and drug addiction 1 in both groups. This is similar to Ido et al.<sup>7</sup> Tranexamic acid exerts its antifibrinolytic effect by blocking lysine binding locus of plasminogen and plasmin molecules, thereby preventing the binding of plasminogen and plasmin to the fibrin substrate. Plasmin inhibition by tranexamic acid may also help prevent platelet degradation. Tranexamic acid has been found to be very useful in reducing blood loss and the incidence of blood transfusion in these surgeries.<sup>8</sup> Gordan et al<sup>9</sup> conducted a study on sixty patients. 30 patients received an intravenous 20 mg/kg bolus dose of tranexamic acid at induction of anesthesia (Group A), and another 30 did not receive the aforementioned drug at induction (Group B). The mean postoperative hospital stay (2.4 vs. 2.63, *P* = 0.4147), drain fluid hemoglobin (Hb) (0.83 vs. 0.90, *P* = 0.2087), drain fluid hematocrit (0.2434 vs. 0.2627, *P* = 0.3787), mean drain output (85 vs. 87.23, *P* = 0.9271), mean pulse rate at the start of surgery (74.2 vs. 75, *P* > 0.999), mean pulse rate 24 h after surgery (75.9 vs. 76.4, *P* = 0.5775), and mean change in Hb (0.240 vs. 0.266, *P* = 0.2502) in both the groups were not significant. Gohal et al<sup>10</sup> found that common complication were pneumoperitoneum seen in 0.2%, bleeding from trocar sites and vascular injury in 0.2%, biliary leaks and bile duct injuries in 0.35% cases.

**CONCLUSION**

The blood loss is can be well controlled by tranexamic acid. Laproscopic cholecystectomy is widely used surgical procedure in cases of cholelithiasis.

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