

Frequency of Deep Vein Thrombosis in Postoperative Obstetrical Patients and Factors Leading To It

Nazia Khan¹, Ihsanullah² and Syed Naemullah³

Deep Vein Thrombosis in Postoperative Obstetrical Patients

ABSTRACT

Objective: To determine frequency of deep vein thrombosis in post operative obstetrical patients and factors leading to it.

Study Design: Descriptive / Cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of Gynecology and Obstetrics Fatima Memorial Hospital, Lahore from 17th November 2011 to 16th May 2012.

Patients & Methods: This study comprised 220 cases. All pregnant women, meeting the inclusion criteria were selected from labour room and operation theatre for study after signed the informed consent. The patients were followed in post operative period for any development of deep vein thrombosis (DVT). The patients were assessed for factors leading to the any development of deep vein thrombosis in post operative period.

Results: Total 220 patients were included in the study during the study period. Out of 220 postoperative patients, one patient had deep vein thrombosis after caesarean section ($p>0.05$). Associated risk factors present in this patient were obesity, prolonged surgery and undergoing emergency caesarean section.

Conclusion: The frequency of postoperative deep vein thrombosis is 0.45% in our study which is not different from studies worldwide. Routine screening for DVT after caesarean section is not warranted.

Key Words: Pregnancy, Venous thromboembolism, Deep vein thrombosis, Caesarean section, Thromboprophylaxis

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INTRODUCTION

Deep vein thrombosis remains a common and serious medical condition frequently complicating the post operative recovery of surgical patients or maintaining denovo in patients with recognized risk factors. Thromboembolisms remain a common and serious preventable cause of post operative mortality and morbidity in the western, world. It is estimated in the united state of America that twenty million cases developed of lower extremity DVT occur in USA alone.¹ The overall prevalence of deep veins thrombosis in post-surgical patients is 10-80% depending upon the type of surgery and individual risk factors.² It is generally accepted that the rate of DVT in Asians is very rare, however sufficient data on prevalence of DVT in this population is lacking.

As the caesarean section rate worldwide has risen to 30%³, it means that around one in four pregnancy ending in caesarean section, poses the woman to increased risk of post operative morbidity including risk of thromboembolism. Pulmonary embolism, DVT in pregnancy and puerperium are determining factors for increase in maternal-fetal morbidity and mortality.⁴ There are reports of 0.5 to 2 cases for each 1000 pregnancies.⁵ Some authors have estimated that DVT in pregnant women is five times more frequent than in non pregnant women of same age group.^{6,7} Studies conducted in various centres showed incidence of DVT from 2% to 7.5%.⁸ Most episodes of DVT are clinically asymptomatic and symptomatic events are merely tip of the ice berg.⁹

Royal college of Obstetricians and Gynecologists have issued guidelines for risk assessment of thromboembolism in obstetrics and thromboprophylaxis in post operative period especially after emergency caesarean sections as risk of developing DVT is 5% higher than delivering vaginally.¹⁰ Other factors like excess blood loss and blood transfusions increase risk of venous thromboembolism.¹¹

Keeping in mind that increasing maternal age (>35 years), multiparity and obesity (BMI >30 Kg/m²) increase the risk of developing DVT. The incidence of DVT in our population is increased from 2.7 to 6%.¹² However more data is needed for our population. By

¹. Department of Gynecology & Obstetrics, Fatima Memorial Hospital Lahore,

². Department of Hematology (Blood Bank) / Neurology³, Shaikh Zayed Hospital Lahore.

Correspondence: Dr. Nazia Khan, Trainee Registrar, Department of Gynecology & Obstetrics, Fatima Memorial Hospital Lahore.

Contact No: 0334-4291419

Email: dr.ihsan_30@yahoo.com

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studying the frequency of DVT in postgraduate obstetrical patients, thromboprophylaxis can be instituted to patients undergoing caesarean section and this life threatening complication can be avoided which can be greatly beneficial for the obstetrical population.

MATERIALS AND METHODS

This cross-sectional descriptive study comprised 220 cases and carried out at Department of Gynaecology and Obstetrics Fatima Memorial Hospital, Lahore from 17th November 2011 to 16th May 2012. All postoperative cases of caesarean section, expected operation time of 45-60 minutes and estimated postoperative hospital stay of 3-4 days were included. Patients on anticoagulation immediately prior to admission, known history of bleeding diathesis, with prolonged prothrombin time and prolonged bleeding and clotting time, single or multiple hemorrhagic episodes within previous 3 months which were unrelated to the surgical procedure, thrombocytopenia, disseminated intravascular coagulation (DIC) and deep vein thrombosis were excluded. Details of mode (emergency or elective LSCS) and duration of surgery was recorded in postoperative period, daily observation for pyrexia ad tachycardia, the calf circumference of both lower limbs was made. Patients were instructed on technique of deep breathing and leg exercises especially isometric ankle flexion exercise. All patient received chest physiotherapy on first postoperative day. Duplex scanning of both legs used as definitive test for deep vein thrombosis was done on the 4th post operative day. The patients were followed in post operative period for ay development of deep vein thrombosis and were assessed for factors leading to the development of deep vein thrombosis in post operative period. The data was entered into SPSS 16 and analyzed.

RESULTS

There were 36 patients (16.4%) <20 years, 160 patients (72.7%) between 21-30 years while 24 patients (10.9%) between 31-40 yrs with mean age was 25.8±4.34 years (Table 1). According to gravida, 72 patients were primigravida (32.9%), 122 patients (55.7%) between G₂ - G₃ group, 16 patients (7.2%) between G₄ - G₆ group and 10 patients (4.3%) had gravidity more than 6 (Table 2). According to BMI, 74 patients (32.9%) had normal (20-25 kg/m²), 130 patients (59.1%) had overweight (25-30 kb/m²) and 16 patients (7.3%) had obese (>30 kg/m²) with mean BMI was 25.6±2.92 kg/m² (Table 3). According caesarean section, it was seen that the number of patients who had an elective caesarean section was 152 (69.3%) and 68 patients had emergency caesarean section [30.7%] (Table 4). Out of 220 patients, 60 had varicose veins whereas 160 had no varicose veins at the time of admission (Table 5). In this study, 185 surgeries were completed with in 45 minutes (84.3%) while 35 surgeries were completed

after 45 minutes [15.7%] (Table 6). Of all the patients, only one patient (0.45%) had deep vein thrombosis and 219 patients (99.55%) had no deep vein thrombosis. Statistically the difference was significant {P<0.05} (Table 7).

Table No.1: Distribution according to age (n =220)

| Age (years) | No. | % |
|-------------|-----|------|
| < 20 | 36 | 16.4 |
| 21 – 30 | 160 | 72.7 |
| 31 – 40 | 24 | 10.9 |

Table No.2: Distribution according to gravidity (n = 220)

| Gravidity | No. | % |
|---------------------------------|-----|------|
| Primigravida | 72 | 32.8 |
| G ₂ – G ₃ | 122 | 55.4 |
| G ₄ – G ₆ | 16 | 7.2 |
| > G ₆ | 10 | 4.5 |

Table No.3: Distribution of patients according to body mass index (n = 200)

| BMI (kg/m ²) | No. | % |
|--------------------------|-----|------|
| Normal (20-24.9) | 74 | 33.6 |
| Over weight (25-29.9) | 130 | 59.1 |
| Obese (>30) | 16 | 7.3 |

Table No.4: Distribution according to nature of caesarean section (n = 220)

| Caesarean section | No. | % |
|-------------------|-----|------|
| Elective | 152 | 69.3 |
| Emergency | 68 | 30.7 |

Table No.5: Distribution according to presence of varicose veins

| Varicose veins | No. | % |
|----------------|-----|------|
| Present | 60 | 27.2 |
| Absent | 160 | 72.8 |

Table No.6: Distribution according to duration of surgery

| Duration of surgery | No. | % |
|---------------------|-----|------|
| < 45 minutes | 185 | 84.3 |
| >45 minutes | 35 | 15.7 |

Table No.7: Distribution according to development of deep vein thrombosis

| DVT | No. | % |
|---------|-----|-------|
| Present | 1 | 0.45 |
| Absent | 219 | 99.55 |

p >0.05

DISCUSSION

The pregnancy and postnatal periods are associated with particularly increased the risk of deep venues thrombosis (DVT) and pulmonary embolism (PE) and developed of thromboembolic disease. Venous thromboembolic disease (VTED) is a leading cause of maternal morbidity, and pulmonary embolus (PE) is the

most common cause of maternal mortality in the developed world.³Therefore, timely identification of patients with PE and DVT is extremely important. Although the overall risk of a venous thromboembolic event is small, pregnant and postpartum patients have a 5 times greater chance of developing an event as compared with non-pregnant women of similar age.¹³

Numerous studies have examined the incidence and risk factors of venous thromboembolic disease in pregnancy.^{7,14,15} Commonly accepted risk factors predisposing women to venous thrombosis during the puerperal period include obesity (body mass index >30 kg/m²) age over 35 years, multiparity (>3 prior deliveries), personal history of DVT or PE, inherited thrombophilia, surgery or caesarean delivery, smoking, and hormonal therapies.¹⁵ Other associated risk factors include gestational diabetes, placental abruption, and eclampsia.¹⁶

James et al¹⁷ demonstrated the overall incidence of DVT during pregnancy and post partum period to be 1.72 per 1000 deliveries making it much it comparable to the incidence in many other studies conducted as well as that performed by us in our setup. It can hence be concluded that the incidence amongst low risk obstetrical population remains to be almost the same worldwide with little variations amongst the ethnic groups.

Various studies have been done in different region. These various studies to identify the common risk factors involved in development of deep vein thrombosis antenatally as well as post natally.¹⁷⁻²⁰

Among many factors, caesarean section has shown to be one of the leading cause of deep vein thrombosis in postpartum patients as demonstrated by Simpson.²¹ Postnatally women who have had a premature delivery, history of cardiac disease, or caesarean section should be carefully assessed for venous thromboembolism. Black women, women ages 35 or older and pregnant women with certain co morbid medical conditions and obstetric complications appear to be at increased risk of venous thromboembolism disease.²⁰

Postpartum venous thrombosis is said to be 3 to 5 times as frequent as ante partum events and 3 to 16 times more common after caesarean section compared with vaginal normal delivery.¹³ Deep vein thrombosis constitutes almost 80% of cases of venous thromboembolism, and the rest are constituted by pulmonary embolism.⁷ In one study, this risk has been quoted to increase to approximately twenty times in the postpartum period. This is in comparison with our study in which only one patient developed deep vein thrombosis in post operative period [0.45%] (p>0.05).

When we analyzed the risk factors in our study compared with that reported in other studies. we observed that although women in our study have risk factors for VTE (age over 35 years 10.9%, obesity 7.3%, emergency caesarean section 30%, prolonged

operation time>45 minutes 15.7%). In our study we only one case of VTE (risk factors presented, emergency caesarean section, prolonged operation time, obesity, and age>35 years). In our population the most frequent risk factors were emergency caesarean section, and prolonged operation time>45 minutes. This is in comparison with the study performed by Milagros Cruz et al.²²

CONCLUSION

The postpartum period and venous thromboembolism complicating pregnancy is a rare event however, all pregnant women individuals should be considered at risk. Although the all patient might not have the traditional risk factors or might present early in gestation, diagnostic testing should be done immediately on the basis of clinical suspicion especially during postoperative period after caesarean section. It becomes prudent for obstetricians to be vigilant in recognizing and diagnosing deep vein thrombosis for improved patients care.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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