Archives of Anesthesiology and Critical Care (Autumn 2025); 11(4): 533-536.

Available online at http://aacc.tums.ac.ir

Research Article

Risk Factors Affecting Deep Vein Thrombosis in Pregnant Women

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ARTICLE INFO

Article history:
Received 07 February 2025
Revised 28 February 2025
Accepted 11 March 2025

Keywords:
Deep vein thrombosis;
Risk factors;
Pregnant women

ABSTRACT

Background: One of the groups at risk for Deep Vein Thrombosis (DVT) is pregnant women. Considering the importance of pregnancy complications, the aim of this study was to determine the risk factors affecting DVT in the ICU.
Methods: In this study, pregnant women admitted to the ICU were included in the study, and instruments used in this study included a registry checklist that included questions. In this study, the clinical records of people with DVT were placed in 2 groups. The sample size included 28 patients with a diagnosis of DVT (case group) and 33 patients without a diagnosis of DVT (control group). Then, the data were analysed with SPSS 16.
Results: Results showed, in the 28 patients studied for whom the diagnosis of DVT was confirmed, the M(SD) of age status was 37.64 (2.57). There was also a significant association between DVT status with a history of thrombocytopenia, chronic diseases, diabetes, and high blood pressure (BP). ($P<0.05$).
Conclusion: In DVT, variables such as chronic diseases, diabetes, high blood pressure, and thrombocytopenia were effective. For this reason, it is essential to pay due attention to the factors affecting the development of DVT in clinical care for these patients.

Introduction

Deep Vein Thrombosis (DVT) is the occurrence of an unusual blood clot in a vein of the lower limb, which can be a serious threat to a person's life due to its transformation into a pulmonary embolism, which is called pulmonary thromboembolism. Thromboembolism includes DVT and pulmonary embolism. Factors such as venous stasis, increased coagulability, and vascular vulnerability are effective in its development [1-2]. DVT is the occurrence of an unusual blood clot in the lower limb, which if this clot enters the lung, poses a serious threat to the person [1-2].

Risk factors for DVT in trauma centers include spinal cord injury, limb and pelvic fractures, advanced age, blood transfusions, surgery and severe head trauma, previous history of DVT, venous catheterizations, malignancies, immobilization, surgical incision size, hip replacement, shoulder replacement, use of oral contraceptives, infectious diseases, respiratory failure, obesity, varicose veins, pregnancy, obesity and hormones, some of which are modifiable or preventable [2-5].

The goal of treating DVT in the acute phase includes reducing or eliminating pain and swelling of the affected limb, preventing clot spread and pulmonary embolism, and preventing recurrent thrombosis [6]. Given that the

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DOI: 10.18502/aacc.v11i4.19369

symptoms of DVT are nonspecific, other tests are recommended to confirm or rule out it. In patients suspected of DVT, performing a D-Dimer test is decisive. Also, if the D-Dimer test results are abnormal, color Doppler ultrasound is necessary [7-8].

One of the groups at risk for DVT is pregnant women. The complications of DVT during pregnancy include ulceration, edema, recurrent thrombosis, and skin changes [9-12]. During pregnancy, due attention should be paid to the health of mothers. In fact, various complications occur during pregnancy for the mother, which is why due attention should be paid to their health [13-16].

Aim

Considering the importance of pregnancy complications, the aim of this study was to determine the risk factors affecting DVT in the ICU.

Methods

This study is part of Iran ICU Registry (IICUR) is a Persian ICU-based registry which was launched in 2018 through a collaboration with The Australian and New Zealand ICU (ANZICS). IICUR was approved by Ethics Committee of Shiraz University of Medical Sciences (Ethic Number IR.SUMS.REC.1397.559), and recognized by Iran Ministry of Health as the first and single registry of adult ICU in Iran.

This study is part of Iran ICU Registry. In this study, pregnant women admitted to the ICU were included in the study. Inclusion criteria included 1- gestational age of more than 3 months or admission to the ICU after delivery, 2- hospitalization for more than 48 hours in the ICU, 3- vascular consultation for the hospitalized patients, and 3- consent of the patients to participate in the study. Exclusion criteria included the presence of motor problems and lower limb defects before admission.

The instruments used in this study included a registry checklist that included questions on age, smoking (yes/no), history of chronic diseases, diabetes (yes/no), hypertension (yes/no), thrombocytopenia (yes/no), amniotic infection (yes/no), thrombophilia (yes/no), acid-base disorders (yes/no), heart disease (yes/no), sickle cell anemia (yes/no), multiple pregnancy (yes/no), antepartum hemorrhage (yes/no), history of surgery in the last 3 months (yes/no), preeclampsia (yes/no), prolonged pregnancy (yes/no), macrosomia (yes/no), fetal growth restriction (yes/no), increased amniotic fluid (yes/no), extensive postpartum infections (yes/no), and cesarean section (yes/no), and results of INR and PTT tests. The instrument questions were derived from previous studies [17-18].

In this study, the clinical records of people with DVT were placed 2 group. The sample size included 28 patients with a diagnosis of DVT (Case group) and 33 patients without a diagnosis of DVT (Control group). Then, the data were analysis with SPSS 16.

Results

Result showed, in the 28 patients studied for whom the diagnosis of DVT was confirmed, the M(SD) of age status was 37.64 (2.57). There was also a significant association between DVT status with History of Thrombocytopenia, chronic diseases Diabetes and High blood pressure (BP). ($P<0.05$) (Table1).

Table 1- Factors affecting the occurrence of risk factors associated with DVT(N-28)

Variable	Yes	No
Smoking	0(0)	28(100)
History of chronic diseases Diabetes	11(39.3)	17(60.7)
High blood pressure	7(25)	21(75)
Thrombocytopenia	5(17.9)	23(82.1)
Amniotic infection	1(3.6)	27(96.4)
Thrombophilia	3(10.7)	25(89.3)
Acid-base disorders	1(3.6)	27(96.4)
Heart disease	1(3.6)	27(96.4)
Sickle cell anemia	1(3.6)	27(96.4)
Multiple pregnancies	3(10.7)	25(89.3)
Prepartum hemorrhage	4(14.3)	24(85.7)
History of surgery in the last 3 months	3(10.7)	25(89.3)
Preeclampsia	1(3.6)	27(96.4)
Prolonged pregnancy	0(0)	28(100)
Macrosomia	1(3.6)	27(96.4)
Incomplete fetal growth	0(0)	28(100)
Increased amniotic fluid	0(0)	28(100)
Extensive postpartum infections	1(3.6)	27(96.4)
Cesarean section	0(0)	28(100)
Partial thromboplastin time (PTT), M(SD)	40.1	22.9

International normalized ratio (INR) M(SD)	1.74	0.73
Age	37.64	2.57

Discussion

Attention to the concept of health, whether it is the prevention of diseases or their treatment, is one of the priorities of the health care system. For this reason, conducting epidemiological studies in order to identify the causes of diseases and the factors affecting them is an important necessity [19-24]. On the other hand, attention to the concept of health in pregnant women is one of the most important priorities of the health care system that should be given due attention [25]. According to the findings of this study, various factors are effective in the development of DVT. These factors include Diabetes, High BP and Thrombocytopenia.

In the study by Anvari et al., it was showed that the factors affecting DVT include age over 60 years, body mass index and previous history of DVT [26]. Also, in the study by Zhang et al., it was shown among the women surveyed that in the first trimester of pregnancy, the factors affecting DVT included a previous history of DVT, immune diseases, and thrombophilia [27]. In the study by Mugeni et al., the prevalence of proximal DVT in hospitalized patients was reported to be 5.5%. In this study, 7% of them were pregnant. Also, the factors affecting DVT include a previous history of DVT, recent long-term travel, long-term immobility, and active malignancy [28]. Also, in the study of Mallah et al., it was shown that diabetes, cardiovascular diseases, hypertension, thrombocytopenia and history of surgery in the last 3 months were among the factors affecting the occurrence of DVT [17].

In a study by Mahjobipoor et al., 2000 records of patients admitted to the ICU were retrospectively reviewed, and 20 patients were diagnosed with DVT. According to the findings, DVT in patients was significantly associated with patient age, type of hospitalization (surgical or internal), nutritional status, length of stay, and Apache score ($P<0.05$) [29]. In a study by Miri et al., 1387 patient records were reviewed, 500 patients were diagnosed with DVT. The mean age of the patients was 60 ± 18 years. In addition to older age, the length of stay in the ICU was also associated with the development of DVT [30].

Other studies include the study by Javadi Moghaddam. In this study, all patients referred to the hospital were examined and it was shown that most patients with DVT were in the age range of 30-40 years [31]. In the study by Mousa et al., in most of the patients studied, factors such as immobility, stroke, fracture, chemotherapy, obesity, oral contraceptive use, and malignancies were found to be important factors in the development of DVT [32]. In the study by Takeda et al., patients hospitalized for neurodegenerative diseases were examined and the rate of DVT was reported to be higher in patients with female gender and higher blood pressure [33].

Conclusion

In DVT, variables such as chronic diseases Diabetes, High blood pressure and Thrombocytopenia were effective. For this reason, it is essential to pay due attention to the factors affecting the development of DVT in clinical care for these patients.

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