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THE LEVEL OF KNOWLEDGE OF DEEP VENOUS THROMBOSIS LINKED TO PREGNANCY AMONG FEMALE IN SAUDI ARABIA IN 2018 AND 2019

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ABSTRACT

Background: clot formation on the deep vein most occur in legs veins such as femoral vein and calf veins. Commonly affecting the deep leg veins or the deep veins of the pelvis. Potentially leading to preventable morbidity and mortality. The purpose of this paper is to determine the level of awareness relative to the risk factor of deep venous thrombosis, among pregnant women .

Methodology: This is an exploratory cross-sectional and questionnaire-based study conducted among 523 adults women living in Saudi Arabia: Saudi and non-Saudi (who either were married or had children), aged ≥ 20 years old, and living in Saudi Arabia .

Results: A total of 342(65.4%) subjects thought that CS can cause DVT, while 379(72.5%) thought that trauma in legs or pelvis can be a risk factor for DVT. Furthermore, more than half of the participants [286(54.7%)] reported that pregnancy increases the risk of DVT. Educationally, a total of 42(8%) subjects hold a master's degree and higher, 344(65.8%) have a bachelor's degree. The level of knowledge about DVT risk factors and the level of education differed not significantly at $P>0.05$. Out of 179 subjects with a positive family history of coagulopathy, a total of 41(22.9%) has a positive history of DVT during pregnancy ($P<0.05$) .

Conclusion: It seemed that previous DVT and the presence of a positive family history of coagulopathy played a basic role in the incidence of DVT during pregnancy period. Noticeably, the number of previous DVT was increased by half more than in the presence of a positive family history of coagulopathy. Furthermore, there was no statistically significant association between the level participants' education and their relevant awareness of DVT risk factors.

KEYWORDS: Coagulopathy; Venous thrombosis; Puerperium; Medical Research Day; Tabuk

INTRODUCTION

Clot formation on the deep vein most occur in legs veins such as femoral vein and calf veins. it is a dangerous complication happen often during pregnancy but in rare condition lead that to death[1]. In general, There are three abnormalities can lead to the formation of a thrombus (called Virchow's triad): Endothelial injury is the most common cause of thrombosis, abnormal blood flow, and hypercoagulability states[2]. The hypercoagulable state is likely to protect pregnant women from developing excessive bleeding during miscarriage and childbirth. On the other hand, the venous blood pressure and volume will increase, respectively to that blood rate reduce and that lead to develop clots because of hemodynamic abnormalities of blood[3]. Most DVTs form in the calf veins, particularly in the soleus sinusoids and cusps of the valves and in Pregnancy state characterized by Virchow's triad: hypercoagulability, venous stasis, turbulence, endothelial injury, and dysfunction. The most important risk factor contributed to thrombosis during pregnancy is Hypercoagulability, increase in procoagulant factors such as fibrinogen, factor V, IX, X, and VIII concentration, Decrease anticoagulant activity protein S concentration and increase activated protein C resistance also Decrease fibrinolytic activity and then increase PAI1 and PAI2 activity and decrease tPA activity[4]. There are many risk factors that could lead to DVT include obesity[5], used oral contraceptives is much larger when they carried the factor V Leiden mutation[6], High plasma homocysteine levels[7]. The deep venous thrombosis during pregnancy could lead to a serious complication like pulmonary embolism, post-phlebotic syndrome, and death[8]. The proximal veins should be performed for suspected DVT during pregnancy by using initial test Compression ultrasonography (CUS), and use compression of the entire proximal venous system[9] to the coagulation test combined with value of color Doppler ultrasonography in the diagnosis of postpartum thrombosis and the prediction of thrombosis in pregnant women [10]. Review of past reports suggests high rates of complications after catheter-directed thrombolysis but lower rates of maternal and fetal complications following systemic thrombolysis and mechanical thrombectomy in the treatment of VTE during pregnancy[11]. Endovascular treatment with US-guided percutaneous aspiration thrombectomy could be considered as a safe and effective way to removed thrombus from the deep veins in pregnant women with acute and subacute iliofemoral deep vein thrombosis[12].

In high-income settings like the United Kingdom, venous thromboembolism continues to be a common cause of direct maternal death. Pregnancy alone increases the risk of deep vein thrombosis by at least five times, and many pregnant women generate or have more risk factors for venous thrombosis during pregnancy and puerperium[13]. In the U.S., deaths due to pulmonary embolism (PE) account for 9.2% of all pregnancy-related deaths or almost 1.5 deaths per 100,000 live births. Maternal deaths and maternal morbidity due to PE are more prevalent among pregnant women delivering by cesarean section. In the previous century, the clinical community has increasingly embraced rules on venous thromboembolism (VTE) and recommended thromboprophylaxis. Although deep vein thrombosis rates have decreased over this time period, PE rates in pregnancy hospitalizations and as a cause of maternal mortality have remained relatively unchanged[14].

Pregnancy is one of the risk factors for venous thromboembolism (VTE) and the highest risk in the postpartum period and effective anticoagulants for the prevention of pulmonary embolism (PE) and recurrent thrombosis, thrombosis in the veins is slow and often only complete or large decomposition occurs in 4% Of patients treated with heparin. [12] During pregnancy the risk for developing DVT are up to 5 times, and the risk more rise by 60-time postpartum, IF left untreated it can be life-threatening, a clot can detach and travel through the circulatory system to the lungs (called a pulmonary embolism, or PE) which is the most serious complication of DVT [15] Developing of DVT during pregnancy and post-partum in women is up to 5 times than when not pregnant[4]. There was a study about awareness of venous thromboembolism and

thromboprophylaxis among hospitalized patients . The study showed the knowledge of hospitalized patients about DVT and PE which was 32 and 15%, respectively and they conclude that a hospitalized patients lack of awareness about DVT and PE[16].

In one of the studies performed in Korea, they found that the awareness of Korean Perinatal Women about venous thromboembolism was about 66.98 (25–100) and it's significantly low[17]. There is also a study in California from 2002 to 2007. The study showed that pregnant women lack awareness of signs and symptoms of venous thromboembolism can lead to a delayed diagnosis and respectively severe complications. One of the most significant complications is death. Moreover, they lack VTE response by taking prophylaxis treatment and follow up after discharge from hospital[18]. Although various studies in the literature have investigated the prevalence, incidence, and risk factors for DVT in Adults, there is deficiency data regarding this topic in Awareness of pregnant women , Given this gap in the literature , we conducted A study that aimed to evaluate the knowledge and various risk factors for deep vein thrombosis (DVT) in pregnant women in Saudi Arabia.

This research is important to determine level of knowledge about the risk factor of deep venous thrombosis among female and defined the relationship between family history and deep venous thrombosis, also to determine the relationship between levels of education and deep venous thrombosis.

MATERIALS AND METHODS

This is an exploratory cross-sectional questionnaire-based study conducted among 523 female (who either were married or had children), living in Saudi Arabia , adults aged from 20 to above 45 years in Saudi Arabia, sample collected in 2018 and 2019 from different region of Saudi Arabia. Both quantitative and qualitative methods were used in this study. We did not get the questionnaire from previous literature .The questionnaire was electronic only , divided into 2 sections, the first section was 5 questions concerned with information of the participants, while the second section was 7 questions evaluating the personal knowledge about DVT.

The approval was obtained from Research Ethics Committee of Tabuk University. Participants will be informed that participation is completely voluntary. All questionnaires will be kept safe. No name will be recorded on the questionnaires. Data analysis was carried out using Microsoft Excel 2016 (Microsoft Corporation, Seattle, WA, USA), and the Statistical Package for Social Sciences version 23 (SPSS Inc., Chicago, IL, USA).

RESULT

This survey was applied to 523 female, who were operated on in 2018-2019. 523 replies were collected, Saudi 499 (95.4%) and non-Saudi women living in Saudi Arabia 24 (4.6%). As per table 1, out of 523(100%); 18 (3.4%) were more than 55 years old, 81 (15.5%) were between sixteen and twenty-five years old, 178 (34%) were between twenty-six and thirty-five years old, 181 (34.6%) were between thirty-six and forty-five years old and 65 (12.4%) were between forty-six and fifty-five years old.

From table 2, (3.6%) 19 were divorced (94.3%) were married and 11 (2.1%) were widows. In table 3, 344 (65.8%) had bachelor's degree, 9 (1.7%) have finished elementary school ,24 (4.6%) were Illiterate, 42 (8%) have master's degree and higher, 27 (5.2%) had finished middle school and 77

(14.7%) have finished secondary school. No statistically significant difference between the level of knowledge about DVT risk factors and the level of education ($P>0.05$, Chi-Squared Test). 342 (65.4%) think that CS can cause DVT, 379 (72.5%) think that trauma in legs or pelvis can be a risk factor for DVT and 286 (54.7%) think that the pregnancy increases the risk of DVT. There is no statistically significant difference between the level of knowledge about DVT risk factors and the level of education ($P>0.05$, Chi-Squared Test).

In table 4 , 61 (11.7%) are from East Region, 126 (24.1%) are from Middle Region, 114 (21.8%) are from North Region, 145 (27.7%) are from South Region and 77 (14.7%) are from West Region. It was noticed as per table 5, that out of 179(34.2 %) who have a positive family history of coagulopathy, 41 (22.9%) have a positive history of DVT during pregnancy ($P<0.05$, Chi-Squared Test). The number of previous DVT has been increased by more than 50% in the presence of positive family history of coagulopathy and this relationship is statistically significant ($P<0.05$, Independent Samples T-test). Fifty-eight (11.1%) have a positive history of DVT during pregnancy. Out of them, 41 have had it one time, 12 have had it twice, three have had it three times and two have had it more than three times.

DISCUSSION

We aimed to determine the level of knowledge about DVT linked to pregnancy among female in Saudi Arabia and defined the relationship between family history and deep venous thrombosis, also determine the relationship between levels of education and deep venous thrombosis.

The present study showed that (65.8%) of Participant who filled the questionnaire had received Bachelor's Degree education, (8%) have master's degree and higher. This reflects their free access to internet and readiness to respond to an electronic questionnaire because of their background of high education. The participants were aware of the DVT risk factors when (65.4%) of them know that CS can cause DVT, (72.5%) know that trauma in legs or pelvis can be a risk factor for DVT and (54.7%) know that the pregnancy increases the risk of DVT . Also, there is no statistically significant difference between the level of knowledge about DVT risk factors and the level of education ($P>0.05$, Chi-Squared Test), which indicate level of education not important when we measure knowledge about risk factor of DVT .This was somewhat consistent with research done by Almodaimegh that showed the level of women knowledge about DVT a were not affected by educational levels[17].

In this study ,Out of 179 who have a positive family history of coagulopathy, 41 (22.9%) have a positive history of DVT during pregnancy ($P<0.05$, Chi-Squared Test). The number of previous DVT has been increased by more than 50% in the presence of positive family history of coagulopathy and this relationship is statistically significant ($P<0.05$, Independent Samples T-test), that indicate family history is risk factor to DVT . This finding is in agreement with that of Noboa et al. who reported that the family history of VTE was associated with VTE occurrence, irrespective of carrying or not factor V Leiden mutation or G20210A prothrombin gene mutation and irrespective of the presence or absence of major acquired risk factors; adjusted conditional odds ratio: 2.7 (95%CI, 1.8–3.8)[19].

This study was measure knowledge only without measuring the practice or mentioning attitude, that one of limitations of study. Also, Study conducted through an electronic questionnaire that limited the number of participants, as only for people with internet access could participate. Also, the questionnaire did not contain questions about sites of DVT and did not include different types of therapy and if female is taking any prophylaxis during or after pregnancy, also, if occur any

complications of DVT during pregnancy. This study on the other hand, was conducted in Saudi Arabia in multiple regions reported Knowledge of DVT associated with pregnancy.

Results of the study explained no difference between the level of knowledge about DVT risk factors and the level of education, so we need to improve knowledge about risk factor of DVT, regardless level of education.

CONCLUSION

Previous DVT and the presence of positive family history of coagulopathy have big role in the incidence of DVT during pregnancy period , The number of previous DVT has been increased by more than 50% in the presence of positive family history of coagulopathy and this relationship is statistically significant ($P<0.05$, Independent Samples T-test).there is no statistically significant difference between the level of knowledge about DVT risk factors and the level of education .

Our recommendations is to generalize these results in KSA we need a large size by using the paper survey and electronic survey together to collect a larger sample , and questionnaire need contain more question about practice and attitudes through DVT , and if the female know importance of prophylaxis and complication of DVT .Also, a personal meeting with the patient is necessary.

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Table 1. Sample Distribution According to Age

	Frequency	Percent
>55	18	3.4
16-25	81	15.5
26-35	178	34.0
36-45	181	34.6
46-55	65	12.4
Total	523	100.0

Table 2. Sample Distribution According to Marital Status

	Frequency	Percent
Divorced	19	3.6
Married	493	94.3
Widow	11	2.1
Total	523	100.0

Table 3. Sample Distribution According to Level of Education

	Frequency	Percent
Bachelor's Degree	344	65.8
Elementary	9	1.7
Illiterate	24	4.6
Master Degree and Higher	42	8.0
Middle School	27	5.2
Secondary	77	14.7
Total	523	100.0

Table 4. Sample Distribution According to Region

	Frequency	Percent
East Region	61	11.7
Middle Region	126	24.1
North Region	114	21.8
South Region	145	27.7
West Region	77	14.7
Total	523	100.0

Table 5. Relationship Between Number of Previous DVT and Positive Family History of Coagulopathy

		Number of Previous DVT During Pregnancy					Total
		>3	0	1	2	3	
Positive Family History of Coagulopathy	No	1	327	13	2	1	344
	Yes	1	138	28	10	2	179
Total		2	465	41	12	3	523