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Research Article

RISK FACTORS AND CLINICAL CHARACTERISTICS OF DEEP VENOUS THROMBOSIS IN THE PATIENTS HAVING GYNECOLOGICAL MALIGNANT TUMOR

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Abstract:

Objectives: The aim of this research work was to find out the risk factors and clinical characteristics of DVT (Deep Venous Thrombosis) in the patients suffering from gynecological malignant tumor, to facilitate the gynecologists for the prevention of the fatal complication.

Methodology: The patients suffering from gynecological malignant tumor got treatment in RHC Fazilpur Rajanpur from June 2016 to August 2020, were retrospectively reviewed. Clinical information of the patients including age of the patient, stage of tumor, adeno-carcinoma, time of surgery, type of surgery, hypertension, diabetes, hyperlipemia, CHD (Coronary Heart Disease), chemotherapy, radiotherapy, total stay in hospital and post-operative rehabilitation exercise were gathered for analysis of the clinical traits of patients and to find out the different risk factors of deep venous thrombosis.

Results: In this research work, there were sixty-seven patients in the Deep Venous Thrombosis group and five hundred and fifty-four patients were in the non- Deep Venous Thrombosis group. We found a significant difference in the hypertension, age, hyperlipemia, time of operation, adeno-carcinoma, stage of tumor, radiotherapy and post-operative rehabilitation exercises in the participants of non- Deep Venous Thrombosis and Deep Venous Thrombosis group ($P < 0.050$). But there was no important difference in the sex, CHD, stay at hospital and surgical treatment ($P > 0.050$). In the multivariate analysis, various factors including hypertension, age, adeno-carcinoma, hyperlipemia and radiotherapy were the independent risk factors, whereas the protective factor for the Deep Venous Thrombosis was rehabilitation exercise.

Conclusion: The patients suffering from gynecological malignant tumor, the screening of Deep Venous Thrombosis should be given due significance, particularly for the patients with elder age, hyperlipemia, hypertension, adeno-carcinoma, or the past history of the radiotherapy. There should be encouragement of the rehabilitation exercise in such patients.

KEYWORDS: Deep Venous Thrombosis, malignant, gynecology, adeno-carcinoma, rehabilitation, radiotherapy, Coronary Heart Disease.

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INTRODUCTION:

One of the leading causes of cancer related death among females is gynecological cancer and Deep Venous Thrombosis is the most important complication in the subjects present with this gynecological cancer. In one research work conducted on eighty-seven patients suffering from ovarian cancer, Kawaguchi stated that there was 16.10% prevalence of Deep Venous Thrombosis [1]. Few patients suffering from Deep Venous Thrombosis may develop the PE (Pulmonary Embolism), which results into high rate of mortality. There is need of surgical intervention for the treatment of gynecological malignant tumor, which may cause the increase in the prevalence of Deep Venous Thrombosis. Geerts stated the Deep Venous Thrombosis risk after the gynecologic surgeries as high up to 17.0% to 40.0% [2]. It may also lead to fatal complications in gynecology departments.

It is much critical to examine the risk factors and traits of the complications of fatal disease. There are many researches works available in this particular field. In one other research work conducted on 498 patients suffering from gynecological malignant tumor who got treatment surgically, Zhang stated that age of the patients, cardiovascular co-morbidities and hemostatic dose after surgery were the most important risk factors of Deep Venous Thrombosis [3]. In one other research work on 120 patients, Yan concluded that diabetes mellitus, hyperlipidemia, cancer type, radiotherapy and surgery were the most important risk factors of Deep Venous Thrombosis in the patients who were suffering from gynecological malignant tumor [4]. Huang also declared the dissimilar results from above mentioned two research works in his research work. The objective of this research work was to find out the risk factors and clinical traits of the Deep Venous Thrombosis in the patients having gynecological malignant tumor to facilitate the gynecologists in better prevention of this fatal abnormality.

METHODOLOGY:

In this current research work, patients suffering from gynecological malignant tumor got treatment in RHC Fazilpur Rajanpur from June 2016 to August 2020. In this research work, we reviewed the data retrospectively. All the patients detected with the gynecological malignant tumor like cervical cancer, cancer of ovaries, endometrial cancer and cancer of fallopian tube who got treatment surgically or without operation, patients without past history of Deep Venous Thrombosis and patients present with complete clinical information were the participants of this research work. We diagnosed the Deep Venous

Thrombosis on the basis of the examination through imaging including MRI (Magnetic Resonance Imaging), Doppler ultrasound and angiography [5]. All the patients present with past history of Deep Venous Thrombosis or the patients with arterial thrombosis, or patients with past history of the diseases of blood or the patients without complete clinical data were not the participants of this research work. The Ethical Committee of the institute gave the permission to conduct this research work.

Patient's clinical data including sex, stage of tumor, age, adeno-carcinoma, duration of surgery, type of surgery, HTN, hyperlipemia, CHD, diabetes, radiotherapy, stay at hospital, chemotherapy and post-operative rehabilitation exercises were gathered for the analysis of the clinical traits of the patients for the determination of the DVT's risk factors. We defined the HTN as BP greater than 140/90 mmHg [6]. We defined the hyperlipemia as increased total level of cholesterol greater than 6.23 mmol/L, or level of triglyceride greater than 2.260 mmol/L, or level of low-density lipoprotein as greater than 4.140 mmol/L. We also diagnosed the presence of CHD and diabetes in accordance with the corresponding standards [7]. We treated most of the patients in this research work surgically, for the facilitation to find out the impact of surgical treatment on the prevalence of Deep Venous Thrombosis. We also clearly identified the thrombosis happening after or before surgery. SPSS V.23 was in use for the statistical analysis of the collected information. We used the Chi square test for the evaluation of the categorical variables. The comparison of the measurement data was carried out with the analysis of variance. We also used the univariate & multivariate regression analysis to identify the association between DVT and variable. We used the multivariate regression analysis to find out the independent risk factor of deep venous thrombosis. P value of 0.050 was considered as significant statistically.

RESULTS:

In this research work, six hundred and ninety-eight patients suffering from gynecological malignant tumors got treatment in the Gynecology Department. Most of the patients in this research work got surgical treatment. 77 patients excluded from the research work because of failure in fulfilling the inclusion criteria. 621 patients got inclusion in this research work. 577 patients got treatment through radical surgery and forty-four patients got treatment through conservative treatment because they were present with increased stage of tumor and they were not amenable to the surgical resection. We diagnosed 67 patients

present with Deep Venous Thrombosis and included these patients in Deep Venous Thrombosis group. We included the remaining 554 patients in the non- Deep Venous Thrombosis group. The prevalence of Deep

Venous Thrombosis was 10.80% in this research work. The clinical characteristics of all the patients present in both groups are present in Table-1.

Table-I: Clinical Characteristics of the Two Groups

| Factors | DVT n=67 | Non-DVT n=554 | P value |
|------------------------------|-----------|---------------|---------|
| Age (> 55 years) (n, %) | 55(82.1%) | 285(51.4%) | 0.0002 |
| Gender (M/F) | 35/32 | 310/244 | 0.56 |
| Hypertension (n, %) | 47(70.1%) | 261(47.1%) | 0.0003 |
| Hyperlipemia | 45(67.2%) | 284(51.3%) | 0.01 |
| Coronary heart disease (n, | 36(53.7%) | 257(46.4%) | 0.26 |
| Diabetes (n, %) | 11(16.4%) | 121(21.8%) | 0.31 |
| Adenocarcinoma (n, %) | 41(61.2%) | 267(48.2%) | 0.04 |
| Tumor staging | | | 0 |
| Stage I | 5 | 152 | |
| Stage II | 11 | 218 | |
| Stage III | 23 | 137 | |
| Stage IV | 28 | 47 | |
| Surgical treatment (n, %) | 65(97.0%) | 512(92.4%) | 0.16 |
| Operation time>3 hours (n, | 38(56.7%) | 389(70.2%) | 0.02 |
| Rehabilitation exercises (n, | 19(28.4%) | 251(45.3%) | 0.008 |
| Chemotherapy (n, %) | 34(50.7%) | 260(46.9%) | 0.55 |
| Radiotherapy (n, %) | 37(55.2%) | 219(39.5%) | 0.01 |
| Hospital stay(days) | 28.9±5.2 | 22.7±6.2 | 0.07 |

We found significant differences in HTN, age, hyperlipemia, time of operation, adeno-carcinoma, stage of tumor, post-operative rehabilitation exercises and radiotherapy between the patients of both groups ($P < 0.050$) but no important differences in sex, CHD, diabetes, stay at hospital and surgical treatment ($P > 0.050$, Table-1). The independent risk factors are age, HTN, adeno-carcinoma, hyperlipemia and radiotherapy whereas rehabilitation exercises is the protective factor for the incidence of DVT (Table-2).

Table-II: The Independent Risk Factors for Deep Venous Thrombosis

| factors | P value | OR (95% CI) |
|--------------------------|---------|--------------------|
| Age (> 55 years) | 0 | 4.326(2.267-8.256) |
| Hypertension | 0 | 2.638(1.523-4.539) |
| Hyperlipemia | 0.014 | 1.945(1.009-2.848) |
| Adenocarcinoma | 0.03 | 1.695(0.201-0.743) |
| Rehabilitation exercises | 0.005 | 0.478(0.274-0.834) |
| Radiotherapy | 0.01 | 1.887(1.132-3.144) |

DISCUSSION:

In this research work, we analyzed the data of 621 patients suffering from gynecological malignant tumor in Gynecology Department of our institute for the determination of the DVT's risk factors. In one research work on 9146 patients, Bokshan state that more than thirty years of age and HTN were having association with the high risk of DVT [8]. Alanazi's in his research work also provided the similar results [9]. Some research work conducted in past stated that HTN (Hypertension) could enhance the DVT's risk, but some other research works stated that there was no association between HTN and DVT [10]. In one research work on fifty-nine patients suffering from DVT, Kawasaki concluded the prevalence of hyperlipidemia as high, in comparison with the healthy controls.

This research work also found the radiotherapy as DVT's independent risk factor, but some authors stated that radiotherapy can decrease the incidence rate of the venous thromboembolism. There is association of cancer with the high prevalence of DVT and this finding was confirmed by many another research works [11]. Imai discovered the prevalence of DVT as 6.52% & 0.79% in controls & rehabilitation sub-groups, correspondingly, showing the decreased prevalence of venous thromboembolism after application of total hip arthroplasty [12]. Many other research works stated a rise in the flow of femoral vein blood during active exercises of ankle which can reduce the DVT rate in the rehabilitation group [13]. There are some limitations of this research work as this research work only focused some risk factors of DVT. There are some other factors that can affect the DVT as perioperative bleeding, infection [14], rheumatological complication and nephrotic syndrome. Most of the patients in this research work were underwent surgery, so it was difficult to find out the effect of the surgical treatment on the prevalence of DVT [15]. There is need of further research works on large size of samples to consolidate the findings of this research work.

CONCLUSION:

The screening of Deep Venous Thrombosis should be given due significance in the patients suffering from gynecological malignant tumor, particularly for the patients of elder age, hypertension, hyperlipemia, adeno-carcinoma, or past radiotherapy history and there should be encouragement of the patients for rehabilitation exercises.

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