

Retrospective Analysis of Deep Vein Thrombosis in Various Types of Comorbid Conditions

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ABSTRACT

Deep vein thrombo-embolic disease is often regarded as uncommon in Indians, but there is no objective evidence to support this view. Venous thromboembolism is a serious and frequent complication after all types of surgery, with venous thrombosis occurring in 40-60% of untreated patients, proximal vein thrombosis in 20- 40% and fatal pulmonary embolism in 1-3% of untreated patients. Severe prophylactic modalities have been shown to reduce the risk; including patients underwent surgery under general anaesthesia. The American College of Chest Physicians recommends low molecular weight heparin products for preventing deep vein thrombosis and pulmonary embolism among patients undergoing major surgery. In the absence of clinical evidence, experts continue to debate the equivalence of LMWHs in terms of pharmacologic properties and clinical outcomes. Prolonged thromboprophylaxis with LMWHs is justified for the improvement in clinical outcomes produced.

Keywords: Blood clot, co-morbid conditions, deep vein thrombosis, low molecular weight heparin, thromboembolism and thrombosis

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INTRODUCTION

Venous thromboembolism diseases an important and preventable complication of acute medical and surgical illness because thrombus propagation and embolization of deep venous thrombosis can lead to potentially fatal pulmonary embolism. Generally, the intensity of pharmacological thromboprophylaxis is tailored to the patient's likelihood of developing VTE. For example, in populations at high risk of VTE such as orthopaedic and trauma patients, randomized trials have shown that low-molecular weight heparins are more effective [1]. Critically ill patients have a high risk of VTE. Patients in the intensive care unit frequently have coincident risk factors, including procedures (e.g. central venous catheters and mechanical ventilation) and exposure to medication that induces immobility (e.g. sedatives, opiates and paralytic drugs). Hospitalized

medical and surgical patients are at high risk of developing deep vein thrombosis [2].

MATERIALS AND METHODS

Retrospective analysis is done for this study by referring the articles published in the journals, books and other materials cited in the references.

Ill Medical Patients

Venous thromboembolism is a major cause of morbidity and mortality in hospitalised patients, including those with acute medical illnesses. Approximately 75% of venous thromboemboli occur among acutely ill nonsurgical patients. Patients with an acute medical conditions like acute congestive heart failure, acute respiratory failure, infection, rheumatologic disorders or inflammatory bowel diseases, cancer, previous venous thrombo embolism, obesity, varicose veins and/or chronic venous insufficiency, hormone replacement therapy, history of chronic heart failure,

chronic respiratory failure or myeloproliferative syndrome are of clinically important venous thromboembolic events in medical patients [3]. Nevertheless, thromboprophylaxis use in medical patients is not universally accepted or adopted even though medical patients are at risk for developing venous thromboembolism. Additionally, even when prophylaxis is used, it may be inadequate to prevent venous thromboembolism. Current guidelines for the prevention of venous thromboembolism in medical patients are based mostly on a reduction in asymptomatic isolated calf vein thrombosis detected by venography. Thromboprophylaxis with low molecular weight heparins resulted in a 45% reduction in the primary endpoint. This benefit was observed in a broad population of medical patients and was achieved with a low risk of major bleeding [4].

Venous thromboembolism among Obese and Hospitalized Patients

Obesity is an established risk factor for venous thromboembolism and represents a major health problem, especially in the United States, where the prevalence has reached 30% in the past decade. Increasing age is also a risk factor for VTE, and risk approximately doubles with each subsequent decade. The US population is aging and an increasing proportion of hospitalised patients are elderly. Obesity presents in one third of men and two thirds of women patients. Acute arthritis, acute lumbago/sciatica, chronic heart failure and varicose veins are more common in obese patients [5]. A fixed low dose of Dalteparin sodium of 5000IU was similarly effective in obese and elderly hospitalized patients [6].

Deep vein thrombosis in critically ill patients with severe renal Insufficiency

Critically ill patients admitted to an intensive care unit (ICU), like medical patients who have had an ischemic stroke or surgical patients who have had hip or knee arthroplasty are at high risk for DVT, without anticoagulant prophylaxis, 20 to 40% will develop DVT and 10% will develop proximal DVT despite prophylaxis with unfractionated heparin. Thromboprophylaxis with low-molecular weight heparin may be more effective than

unfractionated heparin but also more likely to bioaccumulate and potentially cause bleeding in patients with renal insufficiency [7].

Cancer Associated Thrombosis

Venous thromboembolism is a frequent complication of cancer and sometimes a harbinger of occult cancer. Moreover, the use of new and aggressive therapy for cancer increases the risk of thrombosis. There are many causes of thrombosis in cancer. Cancer itself is often the underlying mechanism. When cell of the monocyte or macrophage lineage interact with malignant cells, the release tumor necrosis factor, interleukin-1 and interleukin-6 causing endothelial damage and there by converting the vascular lining over which blood flows to a thrombogenic surface. The interaction between tumor cells and macrophages also activates platelets, factor XII and factor X which leads to the generation of thrombin and thrombosis. Aggressive antitumor therapy with such commonly used agents as platinum compounds, high dose fluorouracil, mitomycin, tamoxifen and growth factors increases the risk of thrombosis [8]. The underlying mechanisms are poorly understood, but many of these therapeutic agents induce vascular damage. Despite a decade of study, it is not known how induces thrombosis [9].

Pharmacological Prophylaxis for the Prevention of Deep Vein Thrombosis and Pulmonary Embolism in Acute Ischemic Stroke Patients

Pulmonary embolism after acute ischemic stroke is associated with high in-hospital mortality. Stroke is the third highest cause of death in western world. Pulmonary embolism is a major contributor to in-hospital death after stroke. Although the rate of clinically overt pulmonary embolism after stroke has been estimated to be less than 1%, pulmonary emboli account for upto 50% of early deaths after stroke [10]. Anticoagulant prophylaxis is effective in preventing pulmonary embolism in-hospitalized patients, and reduces mortality related to this disease after surgery current guidelines recommend the use of prophylaxis in stroke patients with risk factors for venous thrombo embolism. A low dose of LMWH or UFH seems effective

and relatively as a prophylactic agent to prevent venous thrombo embolism in patients with ischemic stroke. In these patients the benefit-risk profile seems best for low dose LMWH [11].

Thromboembolic Diseases during Pregnancy

VTE reminds the main direct cause maternal death in UK and sequential reports of confidential enquiries into maternal deaths have highlighted failures in objective diagnosis and employing adequate treatment [12]. Acute VTE should be suspected during pregnancy in women with symptoms and signs consisted with possible VTE, particularly if there are other risk factors for VTE. The symptoms and signs of VTE include leg pain, swelling, lower abdominal pain, pyrexia, chest pain and collapse. LMWHs do not cross the placenta and seem to be safe of the mother and foetus recommendations on the need for increasing the dosage through pregnancy are variable [13].

DISCUSSION

From the above analysis it was confirmed that both the in patients and the ambulatory patients with the above said co-morbid conditions, health risk factors etc may have the risk of developing DVT. Since the signs and symptoms were of common like all diseases it's highly difficult to identify whether DVT or any other complication. Hence, it may call as a "Silent killer disease" also. Unless the physician goes for the correct diagnostic method it would be high complication to treat and save the patient.

CONCLUSION

Based on our observational data from literatures and articles highly emphasize that the incidence of deep vein thrombosis in Indian population has been considered as significant. This assumption is based purely on clinical findings. The few published Asian studies have shown highest incidence in all type of patients. LMWH is a safe easily administered thrombo prophylactic method in reducing the incidence of DVT.

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