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Case Report

Simultaneosly Occured Two Rare Complicatıons Under Anticoagulant Prophylaxıs After Surgery; Deep Vein Thrombosis and Skin Necrosis with Heparın Induced Thrombocytopenıa Syndrome

Busra Seker Atas*

Department of Gynecology and Obstetrics, Sultangazi Haseki Training and Research Hospital, University of Health Sciences, Istanbul, Turkey

***Corresponding Author:** Busra Seker Atas, Department of Gynecology and Obstetrics, Sultangazi Haseki Training and Research Hospital, University of Health Sciences, Istanbul, Turkey.

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Abstract

Purpose: Review of the frequency, clinical and biological features and treatment of Heparin induced thrombocytopenia.

Methods: Case report and literatüre review.

Results: A 65 years old women received as antithrombotic prophylaxis low molecular weight heparin (LMWH) after gyneco oncology surgery. Day 10,the patient had suffered from enduring, swallowing and pain her arm. After physical examinations, injection site wound found in her arm looks like skin necrosis. We assumed the wound a skin necrosis with dependent on LMWH, then stopped the LMWH treatment. Her labaratory test revealed that her platelet levels were low ($65x10^3$/ul). While recovery is expected, day 11 her complaint were worse, her left arm was swallowing and getting purple color and getting colder. Doppler ultrasound was perfomed on this arm, reported deep vein trombosis (DVT). Althougt there was a conflict the therapy of anticoagulant, after a literature search Rivaroxaban started as medication. Meanwhile, the suspicion of heparin induces thrombocytoperina was confirmed by spesific tests, ADAMts13 activity test. Day 30, after changed for rivaroxaban as medcation, her arms and platelet count return to normal after heparin discontinuation.

Discussion: Heparin Induced Thrombocytopenia (HIT) is an rare adverse effect of heparin therapy. Also, DVT is an condition with possibly devastating consequences. We present a case of simultaneosly occured two rare complications under anticoagulant prophylaxis after surgery; deep vein thrombosis and skin necrosis wıth heparin induced thrombocytopenia syndrome. Espacially oncology patients have huge risk for DVT. While prevention of DVT, we should be aware of complications even there are rare contiditions.

Conclusion: HIT and DVT are rare but life-threatening and need to be treated conditions. Full body examination and the platelet count check-up during heparin therapy.

Keywords: Heparin İnduced Thrombocytopenia; Anticoagulation; HIT; Rivaroxaban

Introduction

Heparin Induced Thrombocytopenia (HIT) is defined a rare complication of heparin therapy. HIT is characterized by decreasing in platelet count after heparin inititiation. Unless HIT could recognize and stop the heparin treatment, the consequences would be devastating. Therefore, when heparin is given for anticoagulant profhylaxis, should be aware of complications of heparin. In daily

practice, patients who performed surgery with any reasons, they are assessed with 'Caprini Score for DVT Risk Calculator'. The Caprini Score is based on the Venous Thromboembolism Risk Factor Assessment that predicts risk and probability of DVT. It stratifies risk for venous thromboembolism and deep vein thrombosis after surgery, based on several factors. After this assessment high scored patients undergo prevention of DVT, generally Low Molecular Weight Heparin (LMWH) is used for it. Heparin should be injected the subcutaus tissue where commonly used areas, abdomen, the outer thigh, the outer upper arm.

Case History

A 65 years old woman was recently performed total abdominal histerectomy bilaterally salpingo-oophorectomy and lymph node dissection, fallowing diagnosed endometrial adenocarcinom FİGO grade 2 confirmed by biopsy results. The Caprini Scor is calculated as a high risk patient, then decided to start LMWH as a prevention of DVT. She had multiple risk factors for DVT such as atrial fibrilation, morbid obesity, malignancy, age. The patient presented on day 10 with complaints of about the swallawing, turning blue and pain on her arms. Physical examination of gthe patient revealed an obese women in mild distress. Her blodd pressure was 123/81 mmHg with a pulse 100 beats per minute. She was breathing 18 times/minute with an oxygen saturation of 100%. She was afebrile. On head and neck examinations, her pupils were equal, round, reactive to light and accommodation. Her sclera was anicteric. On extremity examinations, necrotic skin tissue was detected, which is described sharply demarcating plaques and painful bullous on wounds, occured with the measures 5*6*6 cm over bilateral arms which are injection site areas (Figure 1). When the wound determined which thouht a skin necrosis of inejction areas, immidiately orderes to stop the LMWH therapy.

Figure 1: Injection site wound in day 10 postoperatively.

Her blood chemistry panel revealed serum glucose level, electrolytes, liver, kidney functional test with in normal range. Her blood count levels are with in normal range but platelet count was 65x10^3/ul which is low level. On hospital day 11, the patient reported improvement of symptoms. Vital signs were within normal limits. She complained of changing the color of her arm and went worse the vision of her wound, getting colder of her arm. On extremity examinations, cold and purple arm was detected like avaskulered. The clinical conditon was monitorized by a multidisciplinary team, consulted with the hematology, cardiovascular surgery, dermatology and ortopedy depertment quickly. After the hemotologic evaluations, in blood smear shows normocromic-normocytic anemia,(not seen erytrocyte framentation), normal number/morphology of leukocytes and thrombocytopenia (the real number of platelets was 50-60 x10^3/ul). According to her complains and clinical signs directed us to prompt HIT (heparin induced thrombocytopenia syndrome). '4Ts HIT Probability Testing' is used to confirm diagnosis HIT (Figure 2). Thus, 4T score was calculated to be 6 which is considered as high probability. Then measurement of ADAMTS13 activity was revealed with in normal range, HIT diagnosis became definitive. The consultant doctor recommended discontinuation of LMWH and to start oral anticoagulant threapy. She had bilateral upper extremity venous duplex that was reported as DVT on right axıllary venous simultanously. DVT condition is consulted with Cardiovasculary surgeon, he recommended to continue anticoagulant herapy in Sc or peroral.

4Ts HIT Probability Testing (Pretest)	Score
Thrombocytopenia	
- 50% decrease in platelets AND nadir ≥ 20,000 AND no surgery within preceding 3 days	2
- > 50% decrease BUT surgery within preceding 3 days OR any combination of platelet decrease and nadir that does not fit the criteria for Score 2 or Score 0	1
- < 30% decrease OR platelet nadir < 10,000	0
Timing (from first day of most recent heparin/LMWH exposure)	
- Platelet drop day 5-10 after start of heparin OR within 1 day if previous exposure within the last 5-30 days	2
- Consistent with fall between days 5-10 but not clear OR within 1 day of start with exposure in past 31-100 days OR onset of thrombocytopenia after day 10	1
- Platelet fall is within 4 days of start without recent heparin exposure in the last 100 days	0
Thrombosis	
- New thrombosis, skin necrosis at injection sites, post-heparin acute systemic reaction, adrenal hemorrhage	2
- Progressive or recurrent thrombosis on therapeutic anticoagulant, suspected thrombosis not yet proven, OR erythematous skin lesions at heparin injection sites	1
- Thrombosis not suspected	0
Other Causes for Thrombocytopenia	
- No other cause for platelet count fall is evident	2
- Possible other cause is evident (e.g. sepsis without proven source, thrombocytopenia associated with initiation of ventilator, other)	1
- Probable other cause is present (e.g. within 72 hours of surgery, confirmed bacteremia/fungemia, chemotherapy/radiation within 20 days, DIC, post-transfusion purpura, nadir < 20 AND with other potential drug cause, non-necrotizing skin lesions at injection sites, other)	0
Pretest Probability Score: 6-8 = high 4-5 = intermediate 0-3 = low	**Total = ____** **(8 maximum)**
Assessment and Action: Score ≤ 2 – no presence of HIT or need to test for antibody Score of 3-4 – warrants additional consideration and potential need to request an antibody assay Score ≥ 5 – request antibody assay and consider initiating a alternative anticoagulant	

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Figure 2: Outline for calculating 4T scores.

As a result, there was a conflict. Whereas HIT syndrome's therapy is to stopped the LMWH, but also she sould be cured with anticoagulant becase diagnosed with DVT simultanously. Develepment of HIT syndrome restricted ys to continue a anticoagulant therapy on this patient. On the other hand, unles we treat the DVT, the severe complications would develop. As a result of past research, only Fondaparinuks is recommened in this situtations which is oral anticoagulants such as dabigatran, apixaban or rivaroxaban. After this research, we switch the therapy to Rivaroxaban from LMWH.

Discussion and Conclusion

All around the world, Venous thromboembolism remains the most preventable cause of death in hospitalized patients and is known to cause significant morbidity with associated health-care expenditure.

In 2008, the eighth edition of the American College of Chest Physicians (AT8) guidelines for the prevention of VTE endorsed the need for an "active, formal strategy" to prevent hospital-induced VTE. Vte profilaksis measures to reduce VTE and promote appropriate prophylaxis to at-risk patients in the hospital setting.

over the past 5 years, individual thrombosis risk assessment has become an accepted practice in most surgical specialties [1]. Caprini Risk Assessment Tool for VTE is one of the risk score scales. In our case we use the caprini risk assessment toll to utilize the risk.. According to many studies, when compared to unfractinated heparin, lmwh has lower incidence of hıt, reduced risk of bleeding, and tromboembolic complications. Given these prevention information, lmwh use is widespread. Our case report features the two rare complications, skin necrosis depending on HIT and development dvt under vte profilaksis in a patient at the same time.

Heparin-induced thrombocytopenia (HIT) is a rare complication of heparin therapy. Its pathogenesis includes thrombotic events such as dvt as in our case. Upper limb thrombosis, involving the axillary or subclavian vein, is a less common phenomenon [1]. This condition is subject to the same risk factors and therapy as the formation of lower limb DVT [2]. Cancer is a Major risk factor for secondary DVT similar to our case. Approximately, between 30% and 40% of all upper limb DVTs are cancer-related [3]. In our case, Venous duplex ultrasound of her left arm demonstrated compressible radial, ulnar, and brachial veins with decreased compressibility in the right axillary vein and confirmed the presence of thrombosis extending throughout the length of the vessel.

HIT requires immediate discontinuation of all heparin products and initiation of anticoagulation with different agents in efforts to prevent further progression [4]. An alternative form of anticoagulation in patients with HIT stops the progression of the disease and further antibody formation, and resolves further thrombosis due to platelet activation. Alternatives usually include direct thrombin inhibitors such as argotraban or bivalirudin, fondaparinux, danaparoid, or direct oral anticoagulants (DOACs) such as apixaban or rivaroxaban. There are previous reports of using DOACs successfully in the initial management of HIT [5]. Based on this information, we chose the fondaparinuks therapy which she had already used for AF. Xeralto (oral antitrombolitic) started to begin cure, patient felt better and the view of swallen, uncaskularized and cold arms is gone in hours. Discontinuance of the heparin injections promptly leads to recovery in weeks (Figure 3).

Figure 3: Injection site wound at 1 months postoperatively.

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