

Hospital Thromboprophylaxis In Country with Low Income: Case of The University Hospital Center of Kamenge, Bujumbura, Burundi

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Article Info

Received: September 13, 2021

Accepted: September 20, 2021

Published: September 22, 2021

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Citation: Ndirahisha E, Sibomana T, Manirakiza S, Bukuru H, Baransaka E. "Hospital thromboprophylaxis in country with low income: Case of the university hospital center of Kamenge, Bujumbura, Burundi". *International J of Clinical Cardiology and Cardiovascular Interventions*, 1(1); DOI: <http://doi.org/09.2021/1.1002>.

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Abstract:

Background: Venous thromboembolic disease is a real public health problem worldwide because of its high incidence and frequent fatal complications. In a country with limited resources, there is a lack of technical and material resources with low purchasing power.

Aim: To determine the epidemiological and clinical aspects of venous thromboembolic disease in Burundian hospitals among patients undergoing prophylaxis.

Patients and Methods: This was a prospective descriptive study conducted at kamenge university hospital from September 2019 to December 2019. Was included any patient hospitalized in the internal medicine, surgery and gynecology-obstetrics departments.

Results: A total of 352 patients had been hospitalized in the three departments and 66 of them had benefited from thromboprophylaxis, i.e. 18.7% of cases. Among the factors of thrombosis, bed rest for more than 3 days predominated with 96% of cases. Enoxaparin topped the list of low molecular weight heparins prescribed. No physical means were used as thromboprophylaxis.

Conclusion: Thromboprophylaxis is underused in our hospitals. In order to reduce the negative impact of thromboembolic disease, health personnel must be trained in its management and the population must be made aware of it.

Key words: thromboprophylaxis; anticoagulant; hospital setting

Introduction

Thromboembolic disease (TED), which includes deep vein thrombosis and pulmonary embolism, is a common condition in hospitals, resulting in increased mortality, length of hospital stay and medical costs [1,2]. Its incidence is estimated at 140 per 100,000 people per year in the general population [2]. Pulmonary embolism is one of the leading causes of cardiovascular mortality, accounting for 5 to 10% of in-hospital deaths [3]. In a country with limited sources where there is a lack of material and technical means with low purchasing power, the management of venous thrombosis embolism (VTE) should be focused on prevention. In the surgical setting, thromboprophylaxis is the subject of already established and properly evaluated recommendations. However, recommendations are more difficult to implement because of the heterogeneity of situations and risk factors presented by patients [4]. According to the literature [3], many guidelines are proposed for VTE prophylaxis and the practice guideline developed periodically by the American College of Chest Physicians (ACCP) has become the international standard.

The aim of our study, the first in Burundi, was to determine the epidemiological and clinical aspects of VTE in Burundian hospitals among patients undergoing prophylaxis.

Patients and Methods

This was a prospective descriptive study conducted at Kamenge University Hospital (KUHC) from September ¹ to December 31, 2019. The study had included patients hospitalized in the internal medicine, surgery and gynecology-obstetrics departments during the study period. We had included any adult patient, aged 18 years and above,



hospitalized in any of the three wards with at least one risk factor for VTE.

The sample size was not predefined, the study population was recruited exhaustively according to the inclusion criteria during the period of our study. The data was collected on a pre-designed survey form. For each patient, the survey form included sociodemographic data (age, sex, occupation), risk factors for VTE (neoplasia, previous thrombosis, thrombophilia, oral contraception or menopausal replacement therapy), clinical and paraclinical data, current prophylactic treatment and degree of thromboembolic risk (low, moderate, high). The stratification of the level of risk of VTE was carried out using the "Kucher" score [5], the objective of which is to improve prophylaxis by increasing the benefit/risk ratio of the treatment and decreasing its cost/effectiveness ratio.

Data collection was carried out by direct interview with the patients using a pre-established form and the patients' medical records. A data entry mask had been created on the Epi Info software version 7.2.3.1. The texts had been processed using Microsoft Word and Excel 2013. The results were expressed in the form of averages and percentages and presented in the form of tables. For ethical reasons, we obtained permission from the CHUK Bioethics Committee and the Faculty of Medicine of the University of Burundi. The anonymity and confidentiality of the information were respected during the collection and publication of the data.

Results

Among 2893 patients hospitalized during the study period, 352 were in indication of thromboprophylaxis that is a frequency of 12.1%. According to the hospitalization services, we recorded 124 cases (35.2%) of surgery, 90 cases (25.5%) of gynecology-obstetrics and 138 cases (38.2%) of internal medicine. The female sex predominated with 205 cases (58.2%) against 41.7% for the male sex. The most represented age group was 30 to 55 years with 41.4% followed by over 65 years with 24.1%. The 55 to 65 age group was represented by 14.7% of cases.

Thromboembolic risk factors	Number (n = 352)	Percentage
Breastfeeding > 3 days	338	96
Obstetrical history	102	28,9
Overweight - obesity	101	28,6
Age > 65 years	87	24,7
Surgical history	78	22,1
HTA	41	11,6
Diabetes	38	10,8
Contraception or hormonal treatment	37	10,5
History of neoplasia	33	9,3
Smoking	32	9
History of thrombosis	17	4,8

Table I: Distribution of patients according to thromboembolic risk factors

In our study, 46.5% of the patients were of normal weight, 19.6% were overweight and 9% were obese. According to the Kucher score, 75% of the patients had a score lower than 4 and 25% had

a score higher than 4. The overall degree of thromboembolic risk was moderate in 247 patients (70.1%), low in 53 (15%) and high in 52 (14.7%).

In the department of obstetrics and gynecology, the diagnoses were ovarian cancer in 20 cases

(22.2%), pre-eclampsia in 15 cases (16.6%), uterine cancer in 13 cases (14.4%), bladder fistula in 8 cases (8.8%), severe oligohydramnios in 8 cases (8.8%), pelviperitonitis in 8 cases (8.8%), infection during pregnancy in 7 cases (7.7%), fibroid in 4 cases (4.4%), breast abscess in 3 cases (3.3%), post caesarean infection in 3 cases (3.3%), retro placental haematoma in 2 cases (2.2%) and prolapse in 2 cases (2.2%)

In the surgical department, trauma or polytrauma were the most common diagnoses with 78 cases (62.9%). Post-traumatic pressure sores, chronic wounds, necrotizing fasciitis, prostate cancer and bulbar stenosis were found in 11.2%, 9.6%, 8.8%, 8% and 6.4% of cases respectively. Seven cases (5.6%) of dry gangrene and one case of appendicitis (0.8%).

In internal medicine, cardiovascular diseases with 62 cases (44.9%) and pulmonary diseases with 40 cases (28.9%) were the most numerous. Infectious diseases, neurological diseases, solid tumours, renal diseases and haematological malignancies accounted for 28.2%, 27.5%, 18.1%, 15.2% and 7.9% of cases respectively.

Among the 352 hospitalized patients, 88 (25%) were on preventive treatment (Kucher score > 4) versus 264 patients with a Kucher score < 4. Of those with a therapeutic indication, 48.8% were on thromboprophylaxis versus 51.1% without prophylaxis. Of those who were not indicated for prophylaxis, 8.7% were on thromboprophylaxis versus 91.2% who did not receive treatment. In the department of internal medicine, patients on thromboprophylaxis were represented in 11.2%, 16.2% and 20.8% of the cases for the overall low, moderate and high risk respectively. In surgery, those on thromboprophylaxis were represented in 18.9%, 23.8% and 37.5% of cases, respectively for low, moderate and high risk. In gynecology-obstetrics, they were represented in 16.07%, 16% and 22.2% of cases, respectively for low, moderate and high risk.

Type of prophylaxis	Number (n = 87)	Percentage
LMWH	62	93,9
Early mobilization	12	18,1
VKAS	13	19,7

Table II: Distribution of patients by type of thromboprophylaxis

Discussion

Worldwide, venous thromboembolic disease is a real public health problem because of its high incidence and frequent fatal complications [2, 3]. In Burundi, the incidence of deep vein thrombosis of the lower limbs is estimated at 1.73% [6]. Given the accessibility to specialized care which remains problematic, the objective of our study was to determine the epidemio-clinical aspects of venous thromboembolic disease in the hospital setting in patients under prophylaxis. In our study, 12.1% of hospitalized patients were on thromboprophylaxis. The female sex



predominated with 205 cases (58.2%) against 41.7% for the male sex. The most represented age group was 30 to 55 years old with 41.4% followed by over 65 years old with 24.1%. The 55 to 65 age group was represented by 14.7% of cases. According to Maïga AK et al [7], the hospital frequency of TEN was 4.59% with a female predominance of 56% of cases and 68% of patients were over 40 years old.

According to the literature [1], VTE is a complex multifactorial disease combining the interaction between genetic or acquired predisposition to thrombosis and various risk factors. In our study, we observed medical-surgical and obstetric risk factors. Among them, there was bed rest (96% of patients), hypertension (11.6%), diabetes (10.8%), smoking (9%) and previous venous thrombosis (4.8%). Maïga AK et al [7] had recorded hypertension in 48% of cases and smoking in 36% of cases. In fact, in the cardiological environment, the classic risk factors of atherosclerosis are observed.

The degree of thromboembolic risk according to Kucher score was significant if it is ≥ 4 and warrants initiation of thromboprophylactic therapy [5]. In our study, 75% of patients had a Kucher score lower than 4 against 25% who had a Kucher score higher than 4. In France, the ENDORSE study in 2011 [8] had estimated that 49% of patients had a high risk and another study performed in an emergency department in 2008 by Peudepièce P [9] had a high risk in 13% of patients.

In the hospital setting, the risk of VTE depends on the departments because of the pathologies and situations encountered. In our study, the first three pathologies encountered in the obstetrics gynecology department were ovarian cancer with 20 cases (22.2%), pre-eclampsia with 15 cases (16.6%) and uterine cancer with 13 cases (14.4%). In fact, the postoperative thromboembolic risk without prophylactic treatment in gynaecology is very poorly evaluated. However, our results show that cancer is an important risk factor for VTE in gynaecology and obstetrics.

In the surgical department, the postoperative thromboembolic risk depends on the type of surgery and the presence of additional risk factors [10]. In addition this risk of postoperative thrombosis is increased by age, obesity, history of thrombosis, cancer and comorbidities [10]. According to the literature [11], surgery is the primary risk factor for VTE and is responsible for approximately 15% of all VTE cases in France. In our study, trauma or polytrauma were the most common with 78 cases (62.9%). Post-traumatic pressure sores, chronic wounds, necrotizing fasciitis, prostate cancer and bulbar stenosis were found in 11.2%, 9.6%, 8.8%, 8% and 6.4% of cases respectively. Seven cases (5.6%) of dry gangrene and one case of appendicitis (0.8%).

In internal medicine, myocardial infarction is the most incriminating factor in VTE with an incidence of up to 24% of cases [12]. This high incidence worsens with advancing age, immobilization, risk of developing heart failure and obesity. In our study, cardiovascular pathologies with 62 cases (44.9%) and pulmonary pathologies with 40 cases (28.9%) were the most numerous.

Among the 352 hospitalized patients, 88 (25%) were on preventive treatment (Kucher score > 4) versus 264 patients with a Kucher score < 4 . Of those with a therapeutic indication, 48.8%

were on thromboprophylaxis versus 51.1% without prophylactic treatment. Of those who were not indicated for prophylaxis, 8.7% were on thromboprophylaxis versus 91.2% who had not received treatment. For Dèdonougbo et al [13], 6% of the cases had received appropriate preventive treatment. Lee AD [14], in Brazil in 2006, prophylaxis was done in only 26% of patients with a moderate or high risk level.

In prophylactic management, the combination of physical or mechanical means and anticoagulants is advised because the sum of their different effects is beneficial [15]. In our study, LMWH with 93.9% of cases were the most prescribed for prevention. Mechanical means were used in third position with 18.1% after VKA (19.7%). According to the literature [16], LMWH have been shown to be more effective than standard heparin in the prevention of VTE. UFHs were not used by our practitioners, as they were not available, although they are an effective alternative in cases of severe renal failure [16].

Conclusion

VTE is common in the hospital setting with a female predominance in a relatively young population. The risk of developing thromboembolic disease varies from one department to another. The degree of risk is well elucidated in surgery compared to internal medicine where several factors are involved. It is not well evaluated in the gynecological-obstetrical department. Few patients with indications benefit from thromboprophylaxis. However, there are patients with no indication or with a very low risk of VTE who benefit from this anti-thromboembolic treatment. The molecule of choice is LMWH followed by VKAs. Prevention by physical methods is very much in use.

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