IDENTIA Registry: Incidence of Deep Vein Thrombosis in Medically Ill Subjects at High Risk in Indonesia: A Prospective Study

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ABSTRAK

Latar belakang: *pasien rawat inap dengan penyakit medis berisiko terjadinya trombosis vena dalam (TVD) dan akibatnya terjadi peningkatan risiko mortalitas. Di Indonesia, terdapat disparitas fasilitas pelayanan medis dan terbatasnya data insidens TVD di negara beragam etnisitas dan geografi yang unik dengan populasi yang besar ini. Maka, kami mengeksplorasi insidens TVD dan skor Wells rerata pada pasien rawat inap dengan*

penyakit medis yang berisiko tinggi. ***Metode:*** *pada studi registri multisenter, prospektif, observasional di Indonesia, subyek (usia > 40 tahun) dengan penyakit medis akut (seperti kanker, infeksi akut, atau penyakit respiratori berat) dan tirah baring total selama > 3 hari diikutsertakan dalam studi ini antara Januari 2016 dan November 2017. Data mengenai riwayat penyakit, skor Wells, diagnosis TVD dengan compression ultrasonography (CUS) diambil. Insidens TVD dianalisa pada kelompok eligible dan evaluable. Data dianalisa menggunakan metode deskriptif.* ***Hasil:*** *dari 360 subyek, 334 dianalisa sebagai kelompok eligible. Compression ultrasonography tidak dapat dilakukan pada 26 subyek. Sehingga, 308 subyek yang menyelesaikan prosedur studi dianalisa sebagai kelompok evaluable. Etnis Jawa merupakan etnis terbanyak pada kelompok eligible dan obesitas merupakan riwayat medis tersering. Secara keseluruhan, insidens TVD pada kelompok eligible dan evaluable sebesar masing – masing 37,1% dan 40,3%. Skor Wells rerata (SB) sebesar 3 (1,20) dan durasi tirah baring rerata selama 9 (6,89) hari.* ***Kesimpulan:*** *studi ini menemukan insidens TVD yang tinggi pada pasien penyakit medis di Indonesia dan memberikan masukan baru mengenai kewaspadaan TVD di Indonesia.*

Kata kunci: *trombosis vena dalam, insidens, penyakit medis.*

ABSTRACT

Background: *medically ill hospitalized patients are at risk of deep vein thrombosis (DVT) and consequentially have high chances of mortality. In Indonesia, there is disparity in healthcare facility and data on incidence of DVT in this multi-ethnic, geographically unique country with large population are limited. Hence, we determined the incidence of DVT and evaluated mean Wells score among medically ill hospitalized persons at increased risk.* ***Methods:*** *in this multicenter, prospective, observational registry in Indonesia, subjects (age >40 years) with acute medical illness (like cancer, acute infection, or severe respiratory disease) confined to bed for >3 days were enrolled between January 2016 and November 2017. Data for medical history, Wells score, and DVT diagnosis with compression ultrasonography (CUS) were recorded. DVT incidence was analyzed in eligible and evaluable groups. Data were analyzed by descriptive method.* ***Results:*** *out of 360 subjects enrolled, 334 were included in the eligible group for analyses. CUS could not be performed in 26 subjects. Thus, 308 subjects who completed the study were included in the evaluable group. Javanese were predominant in the eligible group and obesity was the most common medical history at presentation. Overall, incidence of DVT in eligible and evaluable patients was 37.1% and 40.3%, respectively. Mean (SD) Wells score and bedridden days were 3 (1.20) and 9 (6.89), respectively.* ***Conclusion:*** *this study indicated that the incidence of DVT is high in medically ill patients in Indonesia and will provide new insights and awareness about DVT in Indonesia.*

Keywords: deep vein thrombosis, incidence, medically ill.

INTRODUCTION

Venous thromboembolism (VTE) is a common cause of preventable morbidity and mortality in medically ill patients[1], and deep vein thrombosis (DVT) with pulmonary embolism (PE) is associated with high mortality rate.[2] The frequency of DVT without prophylaxis varies from 10% to 26%. PE is accountable for up to 10% in-hospital mortality, and 75% of fatal PE cases occur in medically ill patients.[3]

Owing to the lack of robust literature on Asian population, it was earlier believed that the incidence of VTE was higher in the Caucasian population.[4] However, recent literature shows that Asian countries account for considerable global VTE-related burden and in terms of incidence, it is comparable to the West. The incidence of VTE in Asia is significant and rising among hospitalized medically ill patients.[5] Population-wide estimates of annual VTE rates in three Asian countries: Korea, Taiwan, and Hong Kong, range from 15% to 20% of the level recorded in the Western countries.[6]

Deep vein thrombosis can occur without symptoms, and affected patients may have minimal or atypical symptoms; even patients without thrombotic disorders may present clinical features suggestive of DVT. Only 25%

of those with DVT symptoms have a confirmed diagnosis of DVT on objective testing.[7] The Wells scoring system is a clinical model widely used to assess the risk of DVT or PE in medically ill patients.[8,9] The American College of Chest Physicians guidelines recommend initial testing with compression ultrasonography (CUS) for moderate and high pretest probability of the first-time DVT of the lower extremity, especially if the patients have a comorbid condition associated with elevated D-dimer levels and are likely to have a false-positive result.[10]

One of the major challenges in medically ill patients at risk of VTE is significant underutilization of thromboprophylaxis.[11-13] In Asia, underutilization of thromboprophylaxis is attributed to the notion that the incidence of VTE in Asians is lower than that in Caucasians.[5] A prospective disease registry in Indonesia documents underutilization of anticoagulants in acute medically ill patients at the risk of VTE.[14] Therefore, understanding the true incidence of VTE in Asian countries could improve the rate of VTE thromboprophylaxis in clinical practice.

Indonesia, a geographically unique country with large multi-ethnic population, has disparate healthcare facilities.[15] To the best of our knowledge, no national-level data are available on DVT incidence in medically ill patients at high risk in Indonesia to help physicians evaluate and develop or adopt a standard-of-care for the benefit of patients with DVT. Hence, we conducted the IDENTIA registry to determine the incidence of DVT and evaluate the mean of Wells score among hospitalized medically ill patients at increased risk.

METHODS

IDENTIA was a multicenter prospective observational study conducted in Indonesia between January 2016 and November 2017. The study duration for each patient was approximately 1–3 days, with either 1 or 2 visits depending on the Wells score of the patient.

Patients with Wells score ≥2 had two mandatory visits: first a baseline visit and second within 3 days for CUS to confirm DVT. The study was conducted as per the guiding principles detailed in the 18th World Medical Assembly (Declaration of Helsinki, 1964) and its subsequent amendments, the guidelines for Good Epidemiology Practice (US and European), and the applicable local regulations. This study has been approved by the Ethical Committee of Faculty of Medicine, Diponegoro University - Kariadi Hospital, Semarang (Reference number: 346/EC/FK-RSDK/2015).

Subjects

Considering the incidence of DVT to be 15%[3] and assuming a dropout rate of 15%, 360 patients were required to ensure 95% confidence interval. This would allow a minimum of 306 evaluable patients from 12 centers (1 private general hospital, 10 government general hospitals, and 1 cancer hospital) across Indonesia. The number and geographic distribution of centers and the number of patients included in this study were representative of the population in Indonesia.

Inclusion and Exclusion Criteria

Patients, >40 years of age; with acute illness such as heart failure New York Heart Association class III or IV, severe respiratory disease, stroke, acute infections, or cancer; completely immobilized and confined to bed for >3 days, willing to sign the informed consent; were included. Patients, with a history of coagulation disorders (e.g., hemophilia, antiphospholipid syndrome, von Willebrand's disease, and thrombophilia); suffering from thrombocytopenia (platelet count <50000/μL on the day of signing informed consent); had undergone surgery; or had received antithrombotic drugs; or if pregnant; were excluded.

Data Collection and Analysis

At visit 1 (baseline visit): the informed consent was obtained, the eligibility criteria assessed, and the patient's demographic data, reason for hospitalization, signs and symptoms of DVT, and Wells score were recorded. At visit 2 (baseline visit–day 3): the signs and symptoms of DVT and diagnosis of DVT based on CUS were recorded.

The diagnosis of DVT was confirmed if one or more of the following criteria were observed during the CUS examination: lack of complete compressibility of vein; visualization of intraluminal thrombus with complete or partial

obstruction of the vein lumen; distention of the vein compared to the adjacent artery; abnormal venous Doppler signals, i.e., continuous non-phasic flow, reduced or absent flow with distal augmentation, or no obtainable signal; and continuous, non-phasic flow in common femoral vein (CFV) unilaterally, with phasic flow in contralateral CFV, suggesting iliac vein outflow obstruction, i.e., DVT of extrinsic compression.[16]

All radiologists who performed the CUS in this study were briefed to standardize the examination process. Patients who were eligible for visit 2, but could not complete the CUS examination and for whom no endpoint data were available, were considered as dropouts. Patients were stratified into two risk categories: "DVT likely" if the Wells score was ≥2 and "DVT unlikely" if the Wells score was <2. DVT was confirmed if the pretest probability was intermediate or high, and the CUS result was positive; when the clinical suspicion was low, and the CUS result was negative, presence of DVT was ruled out.

Statistical Analysis

Incidence of DVT was estimated in the eligible and evaluable patient groups. Eligible group consisted of all patients who enrolled in the registry. Evaluable group consisted of all patients who provided informed consent and completed visit 1 but did not qualify for visit 2; or those who qualified for visit 2 and completed CUS. Quantitative variables were presented using descriptive statistics, while qualitative variables were summarized using frequencies and percentages. Statistical analyses were performed using SAS (version 9.4; SAS Institute Inc., Cary, NC, United States). All data were analyzed in an explorative manner. Data were summarized using mean, median, standard deviation (SD), and range for continuous parameters; and counts and percentages for categorical parameters.

RESULTS

Of the 360 patients enrolled, 26 were not eligible. Among 334 eligible patients, CUS was not performed in 26 at visit 2 (due to patient's limitations or for other reasons), and hence were excluded from the evaluable group (N=308). (**Figure 1**)

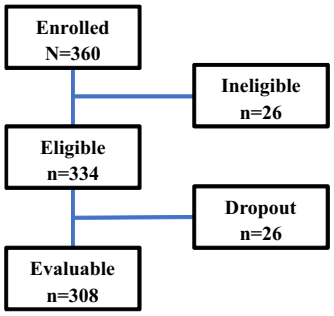

Figure 1. Subject disposition

Table 1. Demographic information and baseline characteristics

Variables	Eligible subjects (N=334)
Age (year)	
- Mean (SD)	60.00 (11.34)
- Median (min, max)	59 (40.0, 96.0)
Gender, n (%)	
- Men	153 (45.81)
- Women	181 (54.19)
Height (cm)	
- N	325
- Mean (SD)	159.00 (8.05)
Weight (kg)	
- N	317
- Mean (SD)	53.00 (12.86)
BMI	
- N	317
- Mean (SD)	21.00 (4.27)
Ethnicity, n (%)	
- Javanese	171 (51.20)
- Bataknese	29 (8.68)
- Balinese	22 (6.59)
- Minangkabau	22 (6.59)
- Chinese	20 (5.99)
- Sundanese	16 (4.79)
- Banjarnese	11 (3.29)
- Buginese	8 (2.40)
- Betawi	7 (2.10)
- Makassar	7 (2.10)
- Malay	5 (1.50)
- Other*, n (%)	16 (4.79)
Past medical history, n (%)	
- Obesity	14 (4.2)
- Hormone therapy	7 (2.1)
- History of previous venous thromboembolism	2 (0.6)
- Varicose vein	1 (0.3)

Table 1. Demographic information and baseline characteristics

Variables	Eligible subjects (N=334)
Diagnosis of medically ill subjects (N=334)**	
- Cancer	217
- Acute infection	154
- Severe respiratory disease	24
- Stroke	19
- Heart Failure NYHA Class III/IV	13

BMI, body mass index; max, maximum; min, minimum; n, total number of subjects; N, total number of eligible subjects; SD, standard deviation. Other*=Manado, Palembang, Flores, Melanesia, Ambonese, Dayak, Irian Jaya, Mongondow, Ternate, Toraja. **Each subject probably had more than 1 diagnosis.

The study comprised 45.81% (n=153) men and 54.19% (n=181) women; the mean (SD) age was 60.00 (11.34) years (**Table 1**). Javanese (n=171; 51.20%) was the major ethnic group followed by Bataknese (n=29; 8.68%). The most common past medical history was obesity (n=14; 4.2%), and the most common acute illness was cancer (**Table 1**).

Incidence of DVT and Mean of Wells Score

Compression ultrasonograpgy (CUS) was performed in 268 (80.2% of eligible and 87.0% of evaluable population) patients with Wells score ≥2. Overall, 124 subjects had confirmed DVT (37.1% of eligible and 40.3% of evaluable population). Most patients with DVT had either cancer or acute infection (**Table 2**).

Table 2. Incidence of DVT according to acute illnesses in eligible population

Diagnosis (Eligible subjects, N=334)	DVT (N=124)	Without DVT (N=184)	Dropouts (N=26)
Cancer	92	104	21
Acute infection	50	91	13
Severe respiratory disease	5	19	0
Stroke	7	11	1
Heart Failure NYHA class III/IV	4	7	2

Each subject probably had more than 1 diagnosis

The mean (SD) Wells score was similar among the two groups: 3 (1.20) for eligible and 3 (1.18) for the evaluable group. A Wells score of 2 was most commonly noted among patients (144 [43.1%] in the eligible group and 132 [42.9%] patients in the evaluable group). The highest Wells score of 7 was noted in 2 (0.6%) patients from the eligible and in 1 (0.3%) patient in the evaluable group (**Table 3**).

Table 3. Two-level DVT Wells score in the evaluable group

	Evaluable (N=308)
Wells Score	
N	308
Mean (SD)	3.00 (1.18)
Median (min, max)	2 (1.0, 7.0)
Clinical probability simplified score, n (%)	
DVT likely (Wells score ≥2)	268 (87.0)
DVT unlikely (Wells score <2)	40 (13.0)
Wells score, n (%)	
- 1	40 (13.0)
- 2	132 (42.9)
- 3	80 (26.0)
- 4	30 (9.7)
- 5	18 (5.8)
- 6	7 (2.3)
- 7	1 (0.3)

DVT, deep vein thrombosis; max, maximum; min, minimum; n, total number of patients; N, total number of evaluable patients; SD, standard deviation

Data on incidence of DVT when stratified by Wells score, indicated a probable trend with increasing DVT incidence with a corresponding increase in Wells score 2 to 5 (**Table 4**).

Duration of Immobilization and Incidence of DVT in Eligible Group

During hospitalization, patients were immobile for a minimum of 2 days and a maximum of 38 days. The average duration of the patients' confinement to the hospital bed

Table 4. Incidence of DVT among patients with Wells score ≥2

Wells score	DVT incidence among medically ill patients at increased risk			
	Eligible=294		Evaluable=268	
	N	n (%)	N	n (%)
2	144	42 (29.2)	132	42 (31.8)
3	86	39 (45.3)	80	39 (48.8)
4	34	21 (61.8)	30	21 (70.0)
5	20	16 (80.0)	18	16 (88.9)
6	8	5 (62.5)	7	5 (71.4)
7	2	1 (50.0)	1	1 (100.0)
Overall	294	124 (37.1)	268	124 (40.3)

DVT, deep vein thrombosis; n, total number of patients with incidence; N, total number of patients in each category. Incidence rate: Number of patients whose Wells score was ≥2 and CUS result was positive divided by the number of available patients in each category. Percentage will be calculated from total number of patients available in each category as denominator.

was 9 (SD 6.89) days. Majority of the patients were immobile for 4 days and the incidence of DVT among those patients was 40.2% (35/87) (**Table 5**).

Signs and Symptoms of DVT at Visit 1 and Visit 2 in Eligible Group

Overall, 40.1% (n/N=134/334) and 34.3% (n/N=37/108) patients at visit 1 and visit 2, respectively, had at least 1 sign or symptom of DVT. At both the visits, the most common sign and symptom was pitting edema confined to the symptomatic leg. Other common signs and symptoms noted at both the visits were entire leg swelling, calf swelling of at least 3 cm larger than asymptomatic side, localized tenderness or pain along the distribution of deep venous system, erythema of the symptomatic leg, and collateral superficial veins (non-varicose) (**Table 6**).

Signs and Symptoms of DVT and CUS Results in Eligible Group

Out of 124 patients with positive CUS, 50 (40.3%) did not have any sign and symptom of DVT. On the other hand, out of 144 (43.1%) patients with negative CUS, 45 (31.3%) had signs and symptoms of DVT.

Correlation Between Past Medical History and DVT Incidence in Eligible Group

There was no statistically significant correlation between the past medical history and the incidence of DVT. The incidence of DVT was 6.5% (8/124) in subjects with history of obesity (**Table 7**).

Correlation Between Past Medical History and Wells Score in Eligible Group

There was no statistically significant correlation between the past medical history and the Wells score. Of the 294 patients, who had Wells score ≥2, 13 (4.4%) patients had a history of obesity, while obesity was present in only 1 (2.5%) of the 40 patients from the Wells score 1 group. Overall, patients with medical history were mostly found in Wells score ≥2 group than in the Wells score 1 group (**Table 8**).

DISCUSSION

This study showed a high incidence of DVT among medically ill patients in Indonesia who are immobile (confined to bed for >3 days) and at an increased risk of VTE. In another study, VTE developed in 11% of patients who were at high risk of thrombosis and did not receive thromboprophylaxis.[11] The incidence of DVT was 40.3% and is relatively higher than that reported in a recent systematic literature review including several Asian countries.[6] This finding might be explained by inclusion of high-risk medically ill patients. Cancer, congestive heart failure, chronic obstructive pulmonary disease are some of the known high risk factors associated with DVT.[17] Other factors, such as high number of patients with Wells score 2 or more, relatively older patients (mean age: 60 years), long duration of immobilization (mean duration of confinement to bed: 9 days), and the criteria of diagnosis using CUS may have also

Table 5. Duration of immobilization in current hospitalization and incidence of DVT (eligible group)

Duration of immobilization (days)	DVT Incidence among medically ill patients at increased risk	
	Eligible	
	N=334	n (%)
2	3	2 (66.7)
3	9	4 (44.4)
4	87	35 (40.2)
5	43	14 (32.6)
6	28	8 (28.6)
7	17	5 (29.4)
8	18	5 (27.8)
9	27	8 (29.6)
10	8	2 (25.0)
11	9	5 (55.6)
12	13	6 (46.2)
13	10	3 (30.0)
14	9	4 (44.4)
15	5	1 (20.0)
16	6	3 (50.0)
17	3	1 (33.3)
18	2	0 (0)
19	5	2 (40.0)
20	3	2 (66.7)
21	4	1 (25.0)
22	3	2 (66.7)
23	3	2 (66.7)
24	1	0
25	5	4 (80.0)
26	1	0 (0)
28	1	0 (0)
30	4	1 (25.0)
31	1	0
32	2	1 (50.0)
33	1	1 (100.0)
34	1	1 (100.0)
36	1	0 (0)
38	1	1 (100.0)
TOTAL	334	124 (37.1)

DVT, deep vein thrombosis; n: total number of patients with incidence; N, total number of patients having duration of immobilization (days). Incidence rate: Number of patients whose Wells score was ≥2 and CUS result was positive divided by the number of available patients in each category.

contributed to the high incidence of DVT.

The criteria for high-risk DVT used in the inclusion criteria of this registry is in line with the Padua scoring system, a validated risk assessment model to identify subjects at potential risk of VTE. Reduced mobility for >3 days and acute medical condition are the 2 factors incorporated in this registry from the Padua model to categorize high-risk subjects.[11]

In this study, the Wells scoring system is used to assess the probability of DVT, and CUS was performed for diagnosing DVT, whereas, the D-dimer test was not performed as it is considered to have a high negative predictive value and is useful in ruling out DVT. The mean Wells score in our study is consistent with the result of a similar hospital-based prospective study that reported a score of 3.58 in subjects with clinical suspicion of DVT.[18] The diagnosis of DVT was positive in both eligible and evaluable groups and there was an indication of corresponding increase in DVT with increasing Wells score. This trend was similar to the linear trend observed between incidence of DVT and Wells score in an earlier study that assessed the risk of DVT in patients with trauma, indicating that Wells score is a valid pretest tool for risk stratification of DVT.[19]

A strong association between immobility and risk of venous thrombosis has been widely reported.[20,21] Confinement to bed for >3 days is one of the risk factors for acute DVT.[22] In this study, the mean duration of confinement to bed during hospitalization was 9 days. Most of the patients had an immobilization period of 4 days, and the incidence of DVT among these patients was >40%, signifying the risk status.

The most common signs and symptoms observed in this registry were pitting edema and swelling in the entire symptomatic leg; both are established clinical variables to assess the probability of DVT.[23] In the eligible group in our study, out of 124 patients with positive CUS, 59.7% had signs and symptoms of DVT, while the remaining 40.3% showed no signs and symptoms. An earlier study reported 36.4% confirmed cases among those having signs and symptoms of DVT assessed by duplex ultrasonography.[24] In our study, out of 144 eligible patients with negative CUS, 31.3% had signs and symptoms of DVT. This could be suggestive of other clinical conditions having similar signs and symptoms. In general, Wells

Table 6. Details of signs and symptoms of DVT at Visit 1 and Visit 2 (eligible group)

	Eligible (N=334)	
	Visit 1	**Visit 2**
The subject was not eligible for Visit 2*, n (%)	-	40 (12.0)
The subject was eligible for Visit 2 as per all enrolled/evaluable population,* n (%)	-	294 (88.0)
- Visit 2 was not performed on the same day of Visit 1	-	108 (36.7)
- Visit 2 performed on the same day of Visit 1	-	170 (57.8)
- Not done	-	15 (5.1)
- Missing†	-	1 (0.3)
Total no. of subjects with any sign/symptom,‡ n (%)	134 (40.1)	37 (34.3)
Total no. of subjects without any sign/symptom,‡ n (%)	200 (59.9)	71 (65.7)
Pitting edema confined to the symptomatic leg, n (%)		
- Yes	97 (29.0)	30 (10.2)
- No	237 (71.0)	78 (26.5)
Entire leg swelling, n (%)		
- Yes	84 (25.15)	24 (8.2)
- No	250 (74.85)	84 (28.6)
Calf swelling at least 3 cm larger than asymptomatic side, n (%)		
- Yes	35 (10.48)	9 (3.1)
- No	299 (89.52)	99 (33.7)
Localized tenderness or pain along the distribution of deep venous system, n (%)		
- Yes	29 (8.68)	10 (3.4)
- No	305 (91.32)	98 (33.3)
Erythema of the symptomatic leg, n (%)		
- Yes	11 (3.3)	3 (1.0)
- No	323 (96.7)	105 (35.7)
Collateral superficial veins (non-varicose), n (%)		
- Yes	2 (0.6)	2 (0.7)
- No	332 (99.4)	106 (36.1)
Cyanosis of the symptomatic leg, n (%)		
- Yes	2 (0.6)	0 (0)
- No	332 (99.4)	108 (36.7)

n, total number of patients; N, total number of patients in eligible/evaluable group. *Percentage was calculated based on eligible/evaluable group. †No data on sign and symptoms of DVT at Visit 2. ‡Percentage was calculated based on patients for whom Visit 2 was not performed on the same day of Visit 1. Details of signs and symptoms of DVT to be filled if Visit 1 and Visit 2 were not performed on the same day.

score of >2 can help predict patients who are at increased probability of DVT, especially if Doppler ultrasonography (USG) is not available. Patients with Wells score >2 and a positive result on Doppler USG should receive treatment. Hence, patients with signs and symptoms should be further diagnosed with Doppler USG since there are several other diseases with similar signs and symptoms of DVT.

Among the risk factors associated with DVT in medically ill patients, a previous history of VTE is one of the strongest predictors.[25] The risk of DVT also substantially increases among patients diagnosed with varicose veins[26] and in those exposed to hormonal therapy.[27] In addition, evidence suggests that subjects with obesity (body mass index [BMI] ≥30 kg/m^2) are at 2-fold higher risk of developing DVT than subjects without obesity.[28] In this study, there was no statistically significant correlation between the past medical history and the Wells score or DVT incidence. The very low number of patients with

Table 7. Correlation between past medical history and DVT incidence (eligible group*)

	DVT (N=124)	Without DVT (N=144)	p-Value
Obesity, n (%)			
- Yes	8 (6.5)	4 (2.8)	0.2352
- No	116 (93.5)	140 (97.2)	
Hormone therapy, n (%)			
- Yes	3 (2.4)	4 (2.8)	1.0000
- No	121 (97.6)	140 (97.2)	
History of previous venous thromboembolism, n (%)			
- Yes	2 (1.6)	0 (0)	0.2131
- No	122 (98.4)	144 (100.0)	
Varicose vein, n (%)			
- Yes	0 (0)	0(0)	0.2131
- No	124 (100.0)	144 (100.0)	

DVT, deep vein thrombosis; n, total number of patients; N, total number of eligible patients. Percentage was calculated from total number of patients available in each category. p-Value was computed using Chi-square/Fisher test to check the difference of past medical history among DVT incidences. *Data were missing for 26 eligible patients, which meant that these subjects were eligible for Visit 2, but Visit 2 was not performed for some reason.

Table 8. Correlation between past medical history and Wells score (eligible group)

	Wells score 1 (N=40)	Wells score ≥2 (N=294)	p-Value
Obesity, n (%)			
- Yes	1 (2.5)	13 (4.4)	1.0000
- No	39 (97.5)	281 (95.6)	
Varicose vein, n (%)			
- Yes	1 (2.5)	0 (0)	0.1198
- No	39 (97.5)	294 (100.0)	
Hormone therapy, n (%)			
- Yes	0(0)	7 (2.4)	1.0000
- No	40 (100.0)	287 (97.6)	
History of previous venous thromboembolism, n (%)			
- Yes	0 (0)	2 (0.7)	1.0000
- No	40 (100.0)	292 (99.3)	

n, total number of patients; N, total number of eligible patients. Percentage was calculated from total number of patients available in each category. p-Value was computed using Chi-square/Fisher test to check the association between past medical history among Wells scores.

a past medical history in this registry makes it difficult to establish an association with occurrence of DVT.

Limitations

In this study, CUS was used for detection of DVT, which is an effective and noninvasive procedure, but may not be superior to contrast venography. Though regarded as a gold standard, contrast venography has inherent risks and limitations and is not routinely used and not widely available in Indonesia. For subjects with Wells score 2 or more but with negative finding on CUS, no serial CUS examination was performed during the study. There might be a high possibility of increased number of DVT cases being detected if CUS was performed more than once in this population.

CONCLUSION

IDENTIA registry, to the best of our knowledge, is the first of its kind study to determine the incidence of DVT among medically ill patients at an increased risk of DVT in Indonesia. In this study, Wells score together with CUS was used for diagnosing DVT; the high incidence reported herewith indicates that DVT is common among medically ill patients at risk of VTE in Indonesia. These findings would help increase awareness on the risk of DVT among healthcare professionals and facilitate the use of appropriate prophylaxis necessary to prevent death and other VTE-related complications among medically ill patients hospitalized in Indonesia.

ADDENDUM

K. L. Tambunan is the national coordinator and principle investigator of the study. J. Pandelaki did data acquisition and briefed all radiologists involved in this study regarding the study-specific procedures (Doppler USG). All remaining authors are principal investigators in the study. All authors were responsible for the interpretation of analyses and critical revision of the manuscript.

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DATA SHARING STATEMENTS

Qualified researchers may request access to patient level data and related study documents including the clinical study report, study protocol with any amendments, blank case report form, statistical analysis plan, and dataset specifications. Patient level data will be anonymized and study documents will be redacted to protect the privacy of trial subjects. Further details on Sanofi's data sharing criteria, eligible studies, and process for requesting access can be found at: https://www.clinicalstudydatarequest.com.

CONFLICT OF INTERESTS

All authors report personal fees and non-financial support from Sanofi Indonesia during the conduct of the study. Dr. Tambunan reports personal fees from Boehringer Ingelheim outside the submitted work. Dr. Suharti reports personal fees and non-financial support from Bayer, Indonesia outside the submitted work. Dr. Benyamin reports personal fees and non-financial support from Dexa Medica outside the submitted work.

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