

# Knowledge and practices of nurses on deep vein thrombosis risks and prophylaxis: A descriptive cross sectional study

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*The aim of the present study was to determine the knowledge and practices of deep vein thrombosis risks and prophylaxis among nurses and to investigate the relation between descriptive characteristics and knowledge and practices of nurses. This descriptive study was conducted with the registered nurses who currently work in a university hospital of Northern Cyprus. Total 165 voluntary nurses composed the sample of the study. A questionnaire prepared by the researchers on the basis of the literature was used as the data collection tool in this study. After having obtained the ethical approval, data were collected through the self-completion method in July 2017. Statistical Package of Social Sciences (SPSS) software, version 20.0, was used to analyze the collected data. Descriptive statistics and Pearson chi-square tests were used in analysis of the data. The results of the study showed that nurses had a high level of general knowledge on deep vein thrombosis. However, they had inadequate knowledge on deep vein thrombosis risks, preventive measures, and poor practices with respect to the prevention of deep vein thrombosis. The study found statistically significant differences in terms of educational levels and experiences of the nurses with different items at risk factor, prevention, and practices on deep vein thrombosis. The study also demonstrated that the nurses with a bachelor's degree had more correct knowledge than the ones graduated from the health-care vocational high school; the nurses with 6–10 years of experience had, on the other hand, higher correct knowledge rates than other groups, in terms of some items. Based on the results of the study, implementation of comprehensive, systematic, and continuous educational programs to enhance the knowledge and practices of the nurses on deep vein thrombosis was recommended. (J Vasc Nurs 2018; ■:1-10)*

Thrombotic disorders are the leading cause of morbidity and mortality worldwide.<sup>1</sup> The World Health Organization (WHO) reports a global rise in mortality from noncommunicable diseases including cardiovascular diseases (such as heart attacks and strokes). Noncommunicable diseases caused 70% of deaths globally, ranging from 37% in low-income countries to 88% in the ones with high income.<sup>2</sup> The deep vein thrombosis (DVT) and venous thromboembolism (VTE) are among the most serious vascular risks to patients. Venous thromboembolism (VTE) is the third leading vascular diagnosis after heart attack and stroke.<sup>3</sup>

Deep vein thrombosis is a common problem affecting both ambulatory and hospitalized patients. The reported incidences of DVT varies between 48/100,000 and 160/100,000.<sup>4</sup> Venous thromboembolism (VTE) or DVT is a problem with fatal consequences and an important, though preventable, cause of morbidity and mortality among hospitalized patients.<sup>5</sup> A report from the Center for Disease Control and Prevention (CDC) puts VTE-related mortality in the United States to be approximately 60,000–100,000 annually, whereby 10%–30% of people die within 1 month of diagnosis.<sup>6</sup> Cohen et al showed that VTEs occurring at hospital were a relatively common occurrence, and VTEs occurring in this way made up 71% of the total mortality arising from VTE. Furthermore, of the estimated 370,012 VTE-related deaths predicted per annum, 93% resulted from either a sudden fatal pulmonary embolism (PE) or an undiagnosed, untreated VTE.<sup>7</sup>

DVT is a blood clot that commonly occurs in the lower limbs.<sup>1,8,9</sup> DVT is often asymptomatic and under diagnosed, also leading to long-term complications; therefore, it is usually called as 'silent killer'.<sup>8</sup> Venous thromboembolism can cause potentially life-threatening complications. Complications such as pulmonary embolism (PE) and chronic complications including the postthrombotic syndrome and recurrent DVTs have significant social and economic impacts.<sup>4,5,10</sup> Pulmonary embolism is the third most common cause of mortality in all age groups, with more prevalence in adults. Despite the

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advances in the medical diagnosis and treatment, the rate of the diagnosed cases is indeed much less than the actual prevalence of pulmonary embolism.<sup>11</sup>

Rudolph Virchow described 3 conditions that predispose to thrombus, that is, the so-called Virchow's triad. This triad includes endothelial injury, stasis or turbulence of blood flow, and blood hypercoagulability. Stasis and endothelial injuries are the important causatives in DVT after trauma or surgery, whereas hypercoagulability is responsible for most cases of spontaneous DVT.<sup>5</sup> There are many factors that can increase the risk of developing a DVT/VTE, including immobility, active cancer, cancer treatment, ischemic stroke, self or family history of DVT/VTE, obesity, pregnancy or postpartum period, varicose veins, smoking, oral contraceptives or hormone replacement therapy, decompensated cardiac failure, lung diseases, acute or chronic inflammatory disease, age > 60 years, hip or knee arthroplasty, major trauma, and major surgery.<sup>12</sup> Moreover, there has been an increasing prevalence of obesity and metabolic disorders such as diabetes mellitus which are predisposing risk factors for the development of a DVT/VTE.<sup>2</sup>

Prevention of DVT is important to avoid negative consequences and requires both identifying patients at risk and choosing an appropriate method of prophylaxis. The National Institute for Health and Care Excellence (NICE-UK) recommends assessing a patient's risk of VTE within 24 hours of hospital admission and whenever the clinical situation changes.<sup>13</sup> Prevention of DVT can include one or both of the mechanical or pharmacological measures. Mechanical methods of prophylaxis include use of elastic compression stockings, intermittent pneumatic compression (IPC), and foot compression devices. Pharmacological prophylaxis includes use of heparin and low-molecular-weight heparin (LMWH). Early mobilization after surgery is paramount, and any intervention that facilitates this will help reduce perioperative DVT.<sup>14</sup>

Nurses can play a major role in DVT/VTE prevention if they are well educated and empowered to improve patient's outcome. Early ambulation, range of motion, assessment of VTE risks, and appropriate nursing interventions lead to reduced VTE in hospitalized patients and improve VTE prophylaxis. To assess a patient's awareness and with respect to administering prophylaxis for VTE staff nurses have more responsibilities. The low-molecular-weight heparin is administered via subcutaneous injection; in this respect, nurses should provide guidance and practice-oriented information about injection applications to patients.<sup>15</sup> Nurses need to instruct patients about dealing and managing prophylaxis venous thromboembolism. They also do play a vital role, acting as an advocate for patients by guiding them to access information relevant to their condition at its best.<sup>16</sup> It is a well-known fact that nurses form the largest professional group involved in direct clinical care within a health-care system. Nurses with expert knowledge and strong leadership skills can have a prominent role in influencing and implementing changes to health-care practices.<sup>17,18</sup>

There is a need to increase the knowledge and awareness of nurses on DVT risks and prevention to avoid complications. Determination of knowledge and practices of nurses on DVT risks and prevention may be useful in improving their awareness and preventing this important public health problem. However, a review of the current literature in the Turkish Republic of North-

ern Cyprus has revealed that no research is available about this subject.

The aim of the study is to determine the knowledge and practices of DVT prophylaxis among nurses, and in line with this aim, the study asks the following questions:

- What is the knowledge level of nurses on DVT risk factors and prevention?
- What are the practices of nurses on DVT risk factors and prevention?
- Are there significant differences between descriptive characteristics, knowledge, and practices of nurses on DVT risks factors and prevention?

## MATERIALS AND METHODS

### *Study design*

A descriptive, cross sectional design was used in this study.

### *Study setting and sample*

The study was conducted at a hospital that is affiliated to the largest and leading university of Northern Cyprus located in Nicosia city. The hospital, where a total number of 168 registered nurses serve, has a bed capacity of 209. There are no guides and protocols on DVT prevention in the hospital. No method for sample selection was used in the study, and the sample consisted of 165 nurses who participated in the study on voluntary basis.

### *Study tools*

A questionnaire titled "Knowledge and Practices of Nurses on Deep Vein Thrombosis (DVT) Risks and Prophylaxis" prepared by the researchers on the basis of the relevant literature and composed of 3 sections was used as the data collection tool in this study.<sup>19,20</sup> The first section was regarding the demographic characteristics of nurses and included 12 questions. The second section consisted of 34 questions regarding knowledge of nurses on DVT risks and prevention with 3 choices (true, false, and do not know). The last section consisted of 13 questions concerning the practices of nurses on DVT prevention with 3 choices (always, sometimes, and never). Expert opinion was obtained as regards content of the questionnaire. Two surgical nursing professors specialized in the subject of the study reviewed and confirmed the content of the questionnaire, and a language specialist approved the clarity in terms of language.

### *Pilot study*

A pilot study was performed with 10 nurses for clarity on June 20–30, 2017. After the pilot study, no revision was necessary, and the nurses who took part in the pilot study were included in the main sample.

### *Data collection*

Data were collected by using the self-completion questionnaire on July 1–31, 2017. The questionnaires were administered to 165 voluntary nurses by researchers. Researchers visited the nurses in their clinics, administering the questionnaires individually during their leisure time. The questionnaires which the nurses completed, accompanied by the researchers, were delivered to the researchers

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