

Venous thromboembolism in hospitalized patients – are we doing enough to prevent it? Commentary to the ENDORSE trial

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Although pulmonary embolism (PE) is one of the most common preventable causes of death among hospital patients, venous thromboembolism (VTE) is usually omitted from lists of major public health problems because it is viewed as a complication of hospitalization for other illnesses, rather than as a specific disease entity. Nevertheless, the potential public health benefit of its prevention is impressive. Extensive data from randomized trials in general surgical patients¹ suggest that provision of adequate prophylaxis in high risk patients will prevent VTE in 1 of every 10 patients and will prevent death due to PE in approximately 1 of every 200 patients. Additional data from meta-analyses in medical and surgical patient provides added support for the effectiveness of prophylaxis and evidence that the resources for the prevention of VTE in high risk patients are justified by a comparison of benefits and costs.^{2,3} However, for the benefits of prophylaxis to be realized, physicians must be able to identify their patients who are at increased risk for VTE and to prescribe an appropriate agent for each patient according to their level of risk. The ENDORSE study provides compelling evidence, both in Poland and around the world, that additional efforts are required to narrow the gap between the evidence from randomized controlled trials of the benefits of VTE prophylaxis and current clinical practices which leave the majority of patients hospitalized for major medical and surgical illness unprotected from potentially fatal PE.⁴

In today's *Polish Archives of Internal Medicine*, Jacek Musiał et al.⁵ report substantial underuse of appropriate prophylactic strategies in clinical practice in a representative sample of 10 Polish acute care hospitals, based on an audit performed in October 2006. The ENDORSE study, a cross-sectional survey of 68,183 patients admitted to 358 hospitals in 32 countries, was designed

to assess the prevalence of VTE risk among acutely ill hospitalized patients, and to evaluate the proportion of at-risk patients who received adequate prophylaxis. Worldwide, 2/3 of surgical patients and more than 1/2 of medical patients were deemed eligible for antithrombotic prophylaxis, but accepted VTE-prevention strategies were provided for only 59% and 40% of these at-risk patients, respectively.⁴ In Poland, 42% of hospitalized patients were deemed at risk of VTE, including 55% of patients who had undergone major surgery and 33% of patients hospitalized with an acute medical illness, but accepted VTE prevention strategies were provided for only 66% and 35% of at-risk surgical and medical patients respectively.⁵

Despite multiple consensus recommendations that prophylaxis for VTE be widely adopted⁶, routine clinical practices observed in ENDORSE are not encouraging. The reasons that prophylaxis is not prescribed are unclear; however the phenomenon of a significant time lag between the disclosure of new medical knowledge and its application in routine clinical practice is not unique to prophylaxis of VTE. There are at least 5 plausible explanations for the low rate of utilization of prophylaxis.

- 1) Physicians are simply not aware of the evidence for prophylaxis.
- 2) Physicians are aware of the evidence, but remain personally unconvinced (presumably based on their own clinical experience).
- 3) Physicians are aware of the evidence, but remain fearful of complications from anticoagulants and are not aware of alternatives, such as mechanical methods.
- 4) Physicians simply fail to recognize the risk of VTE in a particular patient in the midst of innumerable other details of patient management.

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- 5) The health care system fails to provide physicians and patients with the resources needed to provide VTE prophylaxis to all at-risk hospital patients.

It seems probable that all of these factors contribute to the low utilization of VTE prophylaxis as observed in ENDORSE.

A number of studies have examined the evidence for approaches that can be applied in hospitals, which focus on improving the system of care, rather than solely on the education of individual physicians.⁷⁻¹³ For example, the ACCP has recommended that every hospital develop a formal "active strategy" that addresses the prevention of VTE⁶ by employing quality improvement techniques to improve patient safety; integrating evidence-based medicine and best practice guidelines into routine patient care. Strategies proven effective at improving adherence with guidelines include:

- 1) develop and adopt a written hospital policy for VTE prevention
- 2) assign responsibility to nurses and pharmacists (as well physicians) to implement this policy
- 3) use preprinted "standing orders" for broad classes of high risk patients
- 4) perform regular audits of patient charts and provide feedback to a hospital-wide quality-of-care committee as well as to individual physicians.⁷⁻¹³

Work is urgently needed to improve prevention of VTE in hospitalized patients. Local initiatives, such as adopting written, hospital-wide standards for VTE prevention, can increase the use of prophylaxis in routine clinical practice and should be promoted. Guidelines supporting the appropriate use of prophylactic strategies should be endorsed by local, national and international medical and surgical societies. However, for these tools to be successfully implemented, the public health implications of the ENDORSE finding that approximately one-half of all hospitalized patients are at risk for VTE must be appreciated by national and international public health authorities, and resources to allow physicians to prescribe prophylaxis must be funded.

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