

## Letter from the Editors

Venous thromboembolism (VTE) is a very common problem that affects 5% of the population. Historically, it has been shown that untreated pulmonary embolism (PE) often can be fatal if it is not effectively recognized and treated. Significant advances in diagnosis have been achieved with the introduction of ventilation-perfusion (V/Q) scintigraphy during the late 1960s and early 1970s and with computed tomographic angiography (CTA) in the 1990s. There has been considerable debate and controversy concerning these two diagnostic studies with a number of pros and cons associated with each. This issue of *Seminars in Nuclear Medicine* presents many of these topics from different perspectives including those of pulmonologists, critical care physicians, cardiothoracic radiologists, and nuclear medicine physicians. The editors have strived to provide a well-balanced presentation of the controversy.

An initial clinical perspective is presented by Dr. Philip Wells whose name is easily recognizable from the scoring for objective clinical assessment that bears his name. One of the important things that he points out is that patients at low risk (low Wells score) with a negative D-dimer assay can have VTE excluded without any need for an imaging study.

Lower extremity ultrasonography also is an important part of the diagnostic algorithm for VTE. Dr. David Anderson is the senior coauthor of a recent randomized, prospective study showing relatively equal outcomes for V/Q and CTA. He also has considerable experience with leg ultrasonography and shares this with us. It is clearly the first-line study in clinical circumstances where an imaging study may be either contraindicated or not available. Dr. Anderson also discusses the other areas where sonography plays a significant role.

Multidetector CTA has become the most commonly used imaging study for PE. One of the reasons for this is because it is more readily available than V/Q in most medical centers. There is disagreement over the relative sensitivity and accuracy of the 2 procedures. The cardiothoracic radiology group at the University of Michigan is very experienced and nicely presents the case for CTA. We at Montefiore detail our expe-

rience comparing the 2 modalities and present what we consider to be the very significant role of the V/Q study. As noted, we believe that the use of the chest radiograph as the primary triage tool is the appropriate approach.

Our nuclear medicine colleagues in Australia and Europe believe that single-photon emission computed tomography offers a significant improvement over planar V/Q imaging. Dr. Paul Roach and his colleagues in Sydney provide us with an excellent review of this enhanced methodological approach.

In 1996, Miniati and his colleagues in Pisa, Italy, proposed a streamlined radionuclide approach to studying patients with suspected PE. In what became known as the PISAPED study, they utilized the chest x-ray and only perfusion imaging combined with pre-test probability. Although they omitted the ventilation study, they obtained superb sensitivity and accuracy. In their most interesting retrospective review, they have applied their PISAPED criteria to the PLOPED II patient population and have found clinical outcomes comparable to combined V/Q imaging or CTA. This certainly provides us with more "food for thought."

Finally, Dr. Paul Stein and colleagues have generously provided us with a preview look at the recently completed PLOPED III study which deals with the potential role of magnetic resonance angiography in PE diagnosis. It probably will take another year or more before the final results of this study are tabulated and published. However, we thank Dr. Stein for giving us this introductory look at the methodology involved.

Overall, we believe that this issue of *Seminars* is a very comprehensive and timely review of a critically important subject. It has been looked at from a number of different viewpoints. The editors would like to particularly thank Drs. Dirk Sostman and Alex Gottschalk for their helpful advice in formulating this issue. We believe it will serve as a very useful reference source for the next several years.

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