

## REVIEW

# Exclusion of Pulmonary Embolism Using Quantitative Plasma D-Dimer Assays

PAUL E. SIJENS AND MATTHIJIS OUDKERK

*Department of Radiology, University Hospital Groningen, Groningen, The Netherlands*

### SUMMARY

Recent quantitative studies using pulmonary angiography as reference method have indicated that the overall accuracy of quantitative D-dimer assays for the exclusion of pulmonary embolism (PE) in patients suspected of PE is poorer than was reported in earlier studies in which the same D-dimer assays were used (90-94% vs 98-100%). An explanation can be found in the fact that the earlier studies are hampered by the fact that the reference method was a compilation of clinical data and non-invasive diagnostic tests rather than a true gold standard. Furthermore, in those studies no discrimination was made between the milder cases of subsegmental PE and the more severe cases of segmental and larger PE. The lack of a true gold standard and preselection leading to reduced proportions of cases of subsegmental PE in the earlier studies rather than differences in the storage conditions of plasma samples or treatment with heparin, appear to have caused the discrepancies in the reported accuracy of D-dimer assays. It is concluded that the sensitivity and negative predictive values obtained with different quantitative D-dimer assays are in close agreement with each other, that is poor for subsegmental PE and excellent for segmental and larger PE. In diagnostic algorithms D-dimer can reliably exclude acute segmental and/or massive PE. Further work-up within 48 hours is still necessary in negative D-dimer outcomes to exclude subsegmental PE. (Clin. Lab. 2001;47:321-326)