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Evaluation of the use of computed tomography pulmonary angiography in suspected pulmonary embolism in the emergency department: a cross-sectional study

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Introduction: The diagnosis of pulmonary thromboembolism (PTE) is based on the combination of clinical, laboratory, and imaging tests. Computed tomography pulmonary angiography (CTPA) has become the imaging study of choice. However, studies have shown an overuse of this test. The objective of the present study was to evaluate the use of CTPA in the emergency department of a tertiary hospital in patients with suspected PTE. Methods: This was a cross-sectional, retrospective, study in the emergency department of the Hospital de Clínicas de Porto Alegre. All patients with suspected PTE who underwent CTPA in the first 72 hours of hospitalization from December 2013 to December 2014 were included. For the PTE risk classification, we used the Simplified Geneva Score and patients were dichotomized into unlikely PTE or likely PTE. The final diagnosis of PTE was made based on the finding of thrombus in the CTPA. Using clinical and laboratorial data we classified the CTPA as unnecessary when performed in patients classified as being unlikely to have PTE who had negative serum D-dimer levels and potentially unnecessary when performed in patients classified as being unlikely to have PTE and who did not undergo measurement of serum D-dimer. Results: We included 94 patients in the study, 44.7% of men, whose mean age was 58.8 ± 17.5 years. Regarding PTE risk classification, 54 (57.4%) were classified as being unlikely to have PTE and 40 (42.6%) as likely to have PTE. PTE was diagnosed in 19 patients (20.2%), with a prevalence of PTE of 11.1% (6/54 patients) in those patients classified as being unlikely to have PTE and 32.5% (13/40 patients) in those patients classified as being likely to have PTE ($P < 0,05$). Of the 94 CTPA analyzed, 2 (2.1%) were considered unnecessary and 24 (25.5%) potentially unnecessary. Conclusion: The prevalence of PTE in our population was slightly higher to that found in the literature, which not indicated overuse of CTPA. Nevertheless, we identified a possible misuse and this could be reduced by adopting specific diagnostic protocols. Keywords: Pulmonary thromboembolism, emergency department, computed tomography pulmonary angiography. Projeto 40440314.3.0000.5327