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Title: (Contributing factors to) the diagnostic yield of CT pulmonary angiography: A retrospective study

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Body: Introduction Pulmonary embolism (PE) is a potentially life-threatening disease which requires quick and reliable diagnosis to start timely treatment. Clinical probability of pulmonary embolism is assessed by using a combination of Wells-score and D-dimer level. In most cases of PE, CT of pulmonary arteries (CTPA) provides a reliable diagnosis. In the Isala klinieken approximately 1000 CTPAs are performed annually, but its diagnostic yield and factors associated with improving it are unknown. In literature diagnostic yield varies from 7-31%. Aims To determine diagnostic yield of CTPA in our centre and factors associated with it. Differences between specialities as well as adherence to protocol were investigated. Methods All patients receiving a first CTPA for pulmonary embolism in 2010 were included. Data about relevant clinical information and requesting speciality were retrospectively obtained. Differences in diagnostic yield were tested using a Chi-square test. Independent predictors were identified with multivariate logistic regression. Results PE on CTPA was found in 224 of the 974 patients (23%). Between specialities, diagnostic yield varied from 19.5-23.9% (p=0,20). Independent predictors of diagnostic yield were: age, sex, D-dimer, chest pain, cough, dyspnea, cardiac history, COPD, atelectasis/consolidation, intrapulmonary mass and/or interstitial pulmonary disease on CT. Wells-scores were poorly documented (n=127, 13.1%). Poor adherence to protocol was also shown by a high amount of unnecessary D-dimer values with a high Wells-score (35 of 58; 58.6%). Conclusions The diagnostic yield of CTPA in this study was relatively high. Better adherence to protocol might improve it further.