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Scientific Abstract

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Test Bolus Technique for Computed Tomography Pulmonary Angiogram -A Single Centre Experience

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Bolus tracking technique has been widely used for performing a Computed Tomography Pulmonary Angiogram (CTPA) scan, however, the image quality obtained using this technique is sometimes suboptimal. Test bolus technique is an alternative to determine time to peak of contrast enhancement. The objective of this study is to compare test bolus technique against bolus tracking technique for CTPA in terms of contrast enhancement, contrast medium and radiation dose.

Methods

Data including scanning technique, contrast enhancement, amount of contrast used, injection rate and total Dose-Length Product (DLP), were collected retrospectively. The statistics included 10 CTPA performed with test bolus technique (Group A) and 19 CTPA using bolus tracking technique (Group B).

Results

There was significant difference on contrast enhancements for the main pulmonary vessels between group A and B (333.1+19.55 vs 271.2+14.44). The average amount of contrast used in Group A (27mls) was also reduced comparing to Group B (60mls), with no significant difference for injection rate. The DLP in Group A was slightly higher than Group B (Median: 421.47mGy/cm vs 302.82mGy/cm).

Conclusions

With the introduction of test bolus technique, image quality was significantly improved with better contrast enhancements of the pulmonary vessels. Furthermore, amount of contrast medium used could be halved. This could benefit patients with poor renal function. However, the radiation dose when using test bolus technique was found to be higher. Despite higher DLP values, benefits of greater accuracy and image quality, and lesser amount of contrast medium used, would outweigh the risk of slight increased radiation dose.