

P-007- V/Q scan: O uso do SPECT CT para diminuir os laudos inconclusivos- experiência de um hospital terciário

Autores: Salomão Costa; Maria Marta Sabra; Alan Chambi; Gabriela Sadeck; Isabella Pallazzo; Douglas Moeller; Nilton Lavatori; Wilter Ker; Jader Cunha; Claudio Tinoco

Abstract:

There are two well-known methods for this purpose, being one the classic scintigraphy and the other the hybrid image – SPECT CT which is not so available. This study was designed to prove SPECT CT images, using PIOPED SPECT, is superior to planar images analyzed by Modified PIOPED and show how SPECT CT images can solve inconclusive results. We studied images from 31 patients that were separately analyzed by the same observer and used mathematic methods to test both test, using European classification as pattern. Our conclusion proved SPECT CT is superior than planar images to evaluate pulmonary embolism.

Background:

Precocity diagnosis and a well indicated and fast begin of the anticoagulation therapy can reduce mortality and morbidity of pulmonary embolism (PE). V/Q scan is one of the best methods to study patients with preserved hemodynamic stability. It is considered method of choice to patients as: morbidly obese, pregnant, renal failure and allergic to iodine. V/Q scan has high sensibility, although low specificity, with best accuracy in patients with regular thorax XR and its use was reaffirmed with “Prospective Investigation of Pulmonary Embolism Diagnosis II” study (PIOPED II), which classified the image as normal, low, medium and high probability, literature confirms that normal results or high probability are enough to close the diagnosis, but when results are low or medium probability, scintigraphy is not enough and this is most part of the cases. To solve this cases, we are able to associate low dose SPECT CT, this association is even more accurate than angiography. It differs the normal perfusion images than normalized images because of perfused parenchyma overlap and so show more and smaller lesions. Moreover, we can diagnose differences causes of hyperperfusion, studying the CT.

Materials e methods:

We made an observational, retrospective trial, including 50 patients (46% women), selected between January 2013 and January 2015, ages between 30-92 year old, with at least intermediate probability for PE by the Wells criteria, comparing SPECT to planar images. From this group, 19 were excluded because it was missing images to analyze. Images were acquired in a hybrid Symbia equipment with 8 projections, done with 700Kcts for each position, SPECT with 64 projections were obtained with 10 seconds for projection. Low dose CT were performed free breathing. The images were analyzed by the same observer to evaluate the differences of the two complementary methods. Pattern was the emitted report that evolved the two methods and is always seen by three observers. Modified PIOPED, PIOPED SPECT, PISAPED and European classification were used to analyze the images. This way we could make an statistical analysis employing the Qui Quadrate test and Fisher exact test to compare Modified PIOPED to PIOPED SPECT, using EUROPEAN classification as golden pattern.

Results:

31 patients were included, mean age 67.3 +- 20,7 years, being 42% women.

Comparing planar images to SPECT CT images, using European criteria to evaluate the same 31 patients we report different results. European criteria was developed to eliminate inconclusive results and exams can be only positive or negative. On the other hand, Modified PIOPED has five different results (normal, very low, low, intermediary and high probability) which is less helpful to assist the patients.

European Criteria reported 14 positive meanwhile Modified PIOPED reported 5 positive exams, from the same patients, still 22 exams were non diagnostic. It means an increase of almost 200% in positive results.

Comparing Modified PIOPED to European using Fisher test we achieved $p < 0,05$, followed by the Qui Quadrate test when we find a sensibility = 78% and specificity = 82%. Comparing PIOPED SPECT to European using Fisher test the $p = ns$ since there are no false negatives for this test, meanwhile Qui Quadrate test showed sensibility = 100% and specificity = 88%. Confronting both studied methods, using now PIOPED SPECT as the pattern, the sensibility of Modified PIOPED reduces to 68% which leads to an evolution of the nuclear medicine methods.

Conclusion:

We conclude hybrid SPECT/CT imaging has a high diagnostic efficacy in the diagnosis of PE. Lung perfusion scintigraphy performed with a hybrid SPECT/CT device has clearly higher sensitivity and specificity than scanning performed with the planar or SPECT alone technique, reducing inconclusive results.

1. Mortensen J, Gutte H. SPECT/CT and pulmonary embolism Eur J Nucl Med Mol Imaging. 2014; 41(Suppl 1): 81–90. Published online 2013 Nov 9.
2. Miles S; Rogers KM; Thomas P, Soans B, Attia J, Abel C, Holt E, D’Este AC, Hensley MJ. A Comparison of Single-Photon Emission CT Lung Scintigraphy and CT Pulmonary Angiography for the Diagnosis of Pulmonary Embolism CHEST 2009
3. Gutte H, Mortensen J, Jensen CV, von der Recke P. Comparison of V/Q SPECT and planar V/Q lung scintigraphy in diagnosing acute pulmonary embolism. Nucl Med Commun

Bibliografia

Não há fontes no documento atual.