AB1192 CLINICAL APPLICATION OF 18F-FDG PET/CT IN RHEUMATIC DISEASES

Hua Zhong. PEKING UNIVERSITY PEOPLE'S HOSPITAL, DEPARTMENT OF RHEUMATOLOGY, BEIJING, China

Background: ^{18}F -Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography (^{18}F -FDG PET/CT) is widely used in diagnosing malignant diseases. It is also useful applying to autoimmune diseases.

Objectives: To investigate the clinical application and significance of ^{18}F -Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography (^{18}F -FDG PET/CT) in rheumatic diseases.

Methods: Patients who underwent ^{18}F -FDG PET/CT in the Department of Rheumatology and Immunology, Peking University People's Hospital from January 2012 to July 2018 were retrospectively analyzed for clinical application and imaging characteristics of ^{18}F -FDG PET/CT in rheumatic diseases.

Results: 1. From 2012 to 2018, 459 patients underwent ^{18}F -FDG PET/CT examination in the Department of Rheumatology and Immunology, accounting for 5.79% of the total number of PET/CT examinations in the hospital. Further analysis of 415 patients with complete data, including 158 males (38.07%) and 257 females (61.93%), male to female ratio of 1:1.6, average age of patients are (57 ± 16.2) years old. The highest proportion group of patients is from 45 to 65 years old (201/415, 48.43%). The total number of PET-CT examinations in the whole hospital increased year by year. Compared with 2012, the number has increased nearly 10 times in 2017 among patients in the Department of Rheumatology and Immunology. 2. In patients with rheumatic diseases, major purpose of PET/CT examination included exclusion of tumors, diagnosis, and assessment of the disease activity. 3. Of all the 459 patients, 315 cases may indicate the differential diagnosis of the disease, of which 269 (85.4%) were highly suggestive of rheumatic clinical diagnosis, including 55 cases of vasculitis (17.46%), 54 cases of myositis (17.14%), 34 cases of rheumatoid arthritis (10.79%), 30 cases of Sjogren's syndrome (9.52%), 27 cases of adult still's disease (8.57%), 25 cases of systemic lupus erythematosus (7.94%), 25 cases of IgG4-related diseases (7.94%), 10 cases of rheumatic polymyalgia (3.17%) and 6 cases of systemic sclerosis (1.9%); the remaining 46 cases (14.6%) only suggested the possibility of autoimmune diseases.

Conclusion: Rheumatic diseases are complex and diverse, and it is difficult to diagnose. The application of ^{18}F -FDG PET/CT in the diagnosis of diseases is increasingly widespread. The results of this study suggest that ^{18}F -FDG PET/CT to some extent has significance in the classification and diagnosis of rheumatic diseases, especially for the exclusion of malignant tumors.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.8333

AB1192B DIFFUSE WEIGHT IMAGE IS A POTENTIAL MAGNETIC RESONANCE SEQUENCE IN THE PREDICTION OF SPINAL SYNDESMOPHYTE IN YOUNG PATIENT WITH ANKYLOSING SPONDYLITIS

Sang Yeob Lee, Won Tae Chung, Sung Won Lee, Jin Woo Jeong. Dong-A university, rheumatology, busan, Korea, Rep. of (South Korea)

Background: Diffusion-weighted imaging (DWI) is an MRI sequence and has been shown to have advantages over standard MRI sequences in some clinical settings, such as early diagnosis of ischemic stroke and in staging some type of cancers. Different measures of diffusion have been proposed, with the apparent diffusion coefficient (ADC) measure the most widely used. Severe inflammation leads to higher ADC values through increased water in extracellular, less constrained, spaces. Several studies have investigated the clinical utility of DWI in AS, with suggestive evidence that this sequence has valuable discriminatory capacity between AS and non-inflammatory back pain by inflammation degree on sacroiliac joint (SIJ).

Table 1. Scatterplots of the correlation between ADC value by MR DWI and the radiographic spinal progression over 4 years.

Table 2. The univariate and multivariate analysis of affecting factor for new spinal syndesmophyte

variate	Univariate analysis		Multivariate analysis	
	OR (95%)	p-value	OR (95%)	p-value
ADC value	3.88 (0.76-4.25)	0.03	2.02 (0.89-3.56)	0.01
AS-DAS	2.01 (0.52-2.28)	0.04	1.01 (0.56-2.65)	0.09
BASDAI	0.89 (0.78-1.02)	0.03	0.67 (0.34-1.78)	0.08
BASMI	0.58 (0.52-1.22)	0.09	0.88 (0.59-1.88)	0.34
BASFI	0.31 (0.11-0.68)	0.13	0.34 (0.12-0.78)	0.12

Table 1

Objectives: This study was tested the potential capacity of ADC value estimated by DWI on SIJ as the predictor of new spinal syndesmophyte in young patients with ankylosing spondylitis (AS).

Methods: The 58 patients who fulfilled the ASAS axSpA criteria were enrolled and their age was 18-23 years old. All subjects underwent MRI on SIJ with oblique coronal images parallel to the long axis of the sacrum (fast spin-echo T1WI and STIR) at diagnosis and lumbar spine radiograph at diagnosis, 2 and 4 years sequentially. The ADC value on SIJ measured by DW-MRI at diagnosis and spinal radiographs were scored using the Stoke AS Spinal Score (SASSS) at diagnosis, 2 and 4 years continuously. All patients were underwent a detailed clinical evaluation, including the serum erythrocyte sedimentation rate, C-reactive protein, BASDAI, BASMI and BASFI. The univariate and multivariate logistic regression analysis was performed to identify that ADC value on SIJ had an important influence on spinal syndesmophyte growth.

Results: The ADC value on SIJ showed a positive association with inflammatory marker such as, ESR and CRP, but no association with BASDAI, BASMI and BASFI. However, AS-DAS showed a positive association with ADC value. The high ADC value showed more strongly associated with high SASSS over 2 and 4 years continuously. The univariate logistics analysis showed ADC value and AS-DAS were significant predictors for new spinal syndesmophyte. However, multivariate logistics analysis showed the high ADC value had the highest risk of developing new syndesmophytes in spine.

Conclusion: This study showed that the inflammation of AS patient was a positive association with ADC value on SIJ by DW-MRI and the measured the ADC value on SIJ by DW-MRI was the modest discriminating capacity method for predicting development of new spinal syndesmophyte in young AS patients.

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