

The Quality of Life Difference between Smoker and Non Smoker Rheumatoid Arthritis and Ankylosing Spondylitis Patients

Materials and Methods

Study design

The study is designed as a retrospective case control study. Power analysis was performed in order to determine total number of the participants. The Power is accepted as 80% (Type II error range 20%). The minimal accepted level of Type I error range is accepted as 5%. Accordingly, in our country, the incidence of smoking addiction in subjects over 18 years old was considered 50.6% in men and 16.6% in women regarding to the general population in Turkey [13], while the incidence of RA and AS was evaluated as 1.2% [14,15]. Thus, the minimal numbers of participants were calculated as 140 (75 RA and 65 AS) subjects. The present study was performed with the patients of AS and RA in Ondokuz Mayıs University Medical Faculty Hospital between March 1, 2014 and July 31, 2014. A total of 145 subjects were included in the study on voluntary basis who were diagnosed as RA

Results

The demographic, anthropometric, disease and smoking characteristics of the participants are shown in Table 1. When evaluated the mean age of participants, it was observed that the patients with RA were 10 years older than those with AS ($p < 0.001$). Similarly, the first symptoms of RA patients were emerged 10 years later as compared to those diagnosed with AS ($t = 4.400$, $p < 0.001$). No notably correlation between the onset of disease symptoms and the age at onset of smoking was found in smokers ($r = -0.004$, $p = 0.953$). The distribution of subsets belonging to SF-36, EQ-5D and Fagerstrom tests were uniform ($p < 0.001$, $p < 0.001$, and $p < 0.001$ respectively). Four subset scales of SF-36 life quality test (physical function, bodily pain, overall health perception, and vitality) could account for 66% of the changes in EQ-5D scale scores (adjusted $R^2 = 0.66$), when examined the effects of scores obtained from EQ-5D life quality scale on the subsets of SF-36 life quality survey by means of a multi-regression model. Accordingly, while the EQ-5D index score increased, patients' scores for physical function, bodily pain, overall health perception, and vitality were also increased. No significant results were obtained from the regression model analyzing the relationship between sociodemographic characteristics of the patients and SF-36 and EQ-5D ($p > 0.05$, Adjusted $R^2 = 0.057$).

Variables	Diagnose (RA)	Diagnose (AS)	P, t, x values
Men (n)			
Women (n)			
Mean age			
Height (cm)			
Weight (kg)			
BMI (kg/m ²)			
Waist circumference (cm)			
Male			
Female			
Package/year			
Fagerstrom Dependence Scores / Test			

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)
Variables							
Age							
SF-36							
EQ-5D							
Weight							
Lenght							
BMI							
D.Age							
EQ-5D Percentage							
Constant							

Table 4 The binary regression model investigating the relationship between smoking with quality of life (SF-36, EQ-5D) and other variables in AS patients. *The age at onset of disease symptoms in patients. †The general health perspective percentage in EQ-5D patients.

Discussion

Very interesting results were obtained from our study to investigate the quality of life of patients both smoking and non-smoking. First of all, our study revealed a high smoking ratio between AR and AS patients (39.2% of RA, 50% of AS). When evaluated according to gender, 22.8% of women (n=18) and 69.7% of men (n=46) were smokers. Fallah et al. [22] reported in their study that the smoking rate among patients with AS was 29.4%, while Hazes et al. [7] reported the rate of smoking in patients with RA as 33.0%. Again, Hazes et al reported in their study that the alcohol consumption in patients with RA was 23.0%, while the rate in our study was only 7.6%. These results were higher than the general population as a total of 31.2% of adults aged 15 and over in Turkey are smokers (47.9% among men and 15.2% for women) [23].

Our results revealed that a direct use of tobacco has no effects on quality of life of both patients with RA and AS. Patients were selected in a way to prevent the formation of bias and retention side on power analysis. Considering the fact that most smokers are male and that the quality of life scores in males are higher, it was first thought that gender had a confusing effect; however, it was then observed that the situation did not change when stratification by gender was achieved. Smoking patients are approximately 4 years younger than those non-smokers (42.64 ± 13.3 vs 46.9 ± 13.8 years). These factors in the regression analysis examining the sociodemographic variables including age were also observed to be insignificant.

Hazes et al concluded in their study on SF-36 and EQ-5D scores that smoking and alcohol consumption had a protective effect on RA disease, which was similar to our findings [7]. When addressed according to their diagnosis, the highest subscale scores in patients with RA belonged to SF-36 General Mental Health, and the lowest were the SF-36 physical role. Nicotine is a very potent psychological

and neurological stimulant that influences behaviors, emotions and mood and disables physical capacity of the patients [24]. The scores from our test might be explained with balancing effect of these two subscales (general mental health and physical role) with each other. However this phenomon couldn't explain the results of AS patients. The highest subscale scores for AS patients belonged to SF-36 social functionality, while the lowest were SF-36 general health as expected. In a study, Durmus et al. [25] obtained the highest score among SF-36 life-quality subscales from Social Function, suggesting a similarity to our study as well. Ward et al. [26] examined the functional status and daily life activities of patients with AS more than 20 years, and they found out that the patients smoking showed increased limitation on functional and daily life activities compared to those never started smoking or those who had already given it up. They associated this limitation with lack of exercise due to possible health problems rather than a direct effect of smoking. In another study investigating the effect of smoking on functional status and disease activities in patients with AS for at least 20 years, it was seen that smoking deteriorated the clinical manifestation and functionality [27]. Saag et al. [28] found greater numbers of subcutaneous noduls, radiological erosion degree and the level of Rheumatoid Factor in smoking patients diagnosed with RA, compared to non-smokers or those who had given it up. In our study, smoker RA patients have 5 kg/m² higher BMI values more than non-smokers. However, it is not valid for patients with AS, whose mean BMI were found to have 30.4 ± 5.8

In our study, the age at onset of symptoms in patients diagnosed with RA was 39.1 ± 13.2 years, while 29.9 ± 11.4 years in AS patients. In a study, Tas et al. [29] founded these values as 41.3 years in RA and 29.3 years in AS diagnosed patients. In the study of Hazes, the most frequent range of age at onset of complaints was 50s years [7]. Similarly, in the [7 we ls, rangP ~ in the

range of level of Type II error (80%). A bigger sample selection might have different results.

As a conclusion although our study have revealed that there is no statistical relationship between the life qualities of AS and RA patients, the symptoms in smokers was observed to onset earlier. Further research are required on the factors in which smoking affects the life quality in both diseases.

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