A Comparative Study of QTc interval Changes in Smokers and Non smokers

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Abstract

We did a study comparing QTc interval in smokers and non smokers. We included 110 healthy male volunteers – 55 smokers and 55 non smokers, of age from 18 to 30 years from the OPD of Krishna hospital & ICU. Healthy male volunteers including smokers as per ICD – 10 criteria for substance abuse were included. Subjects with systemic illness (like Diabetes Mellitus , hypertension, coronary artery disease, Tuberculosis), drug and alcohol abuse were excluded. With the subject in resting supine position a 12 lead Electrocardiogram using a single channel ECG was recorded . QTc interval was compared between smokers and non smokers. There is no significant change in QTc of smokers and non smokers in our study.

KEYWORDS: smokers, nonsmokers, QTc interval, QT interval

INTRODUCTION

The World Health Organization predicts that tobacco associated deaths in India may exceed 1.5 million annually by 2020. There are more than 120 million smokers in India , the rate of tobacco associated deaths in India is increasing to about 3% per year[1]. Electrocardiogram is one of the earliest and non invasive investigation to perform. it is also very easy to perform and interprete. Various studies have already been done looking for changes in ECG of smokers compared to non smokers. All these studies show varying results and it is necessary to establish changes in ECG of smokers. A study done in Dhaka in 2011 concluded that there is no significant change in ECG of smokers when compared to that of non smokers. [2]. . A similar study was conducted in general population of Davangere in 2010 which shows some changes in ECG of smokers[3]. With this background we did a study comparing QTc in smokers and nonsmokers.

MATERIALS AND METHODS

We included 110 healthy male volunteers – 55 smokers and 55 non smokers of age from 18 to 30 years from the OPD of Krishna hospital & ICU. Healthy male volunteers including smokers as per ICD – 10 criteria for substance abuse were included[4]. Subjects with systemic illness (Diabetes Mellitus, Hypertension ,Coronary artery disease,Tuberculosis), drug and alcohol abuse were excluded. Institutional Ethical committee approval was obtained. Written Informed consent was obtained from subjects. A thorough clinical and systemic examination was done. All subjects were asked to abstain from smoking and caffeine beverages 2 hrs prior to ECG recording. . With the

subject in resting supine position a 12 lead Electrocardiogram using a single channel ECG cardiant was recorded in Krishna hospital & ICU. QTc was calculated using Bazett's formula.QTc was compared between smokers and non smokers

RESULTS

PARAMETERS	SMOKERS	NON SMOKERS	P VALUE
QTc	0.41+0.03	0.42+0.02	0.121
QT	0.38+0.02	0.35	O.000

($p < 0.05$ considered significant)

DISCUSSION

Venkatesh et al showed there is no significant changes in ECG of smokers when compared to that of nonsmokers[3]. Our study also has the same finding. Khan IS[2] et al did a similar study which showed no changes in ECG of smokers when compared to that of nonsmokers .Our study has some significant changes in QT but not in OTc. Karjalainen J et al[5] did a study and concluded prolonged QT as a risk factor for cardiac mortality in smokers. Our study is in acceptance with this. So although some change is found in other parameters, no change is found in the QTc intervals of smokers. Aravind thangarasa et al did a similar study which is also consistant with our results[6].

CONCLUSION

There is no significant change in QTc of smokers when compared to non smokers in our study.

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