P-1205-The Association between Life style Habits and Impaired Glucose Tolerance in Non-diabetic Saudi Adults- Preliminary Findings

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Introduction

Impaired glucose tolerance (IGT) is one of the major factors contributing to high risk for developing diabetes militias (DM) and cardiovascular disease (CVD) [1-3]. Age as well as genetics were reported to be major non-modifiable risk factors of IGT in various populations [4]. However, there are a number modifiable risk factors; mainly lifestyle habits; with varying degree of importance depending on studied population [5]. The association between lifestyle habits and IGT has not been well studied in the Kingdom of Saudi Arabia

Aim: to study the association of lifestyle habits (smoking, physical activity, and sleep duration) with IGT in non-diabetic Saudi adults.

Methods

This is part of a bigger study to validate diabetes risk score in Saudi Arabia. Non-diabetic adults were recruited from nine primary care health centers in Jeddah during the summer of 2016. Recruited individuals were interviewed using a predesigned questionnaire covering demographic characteristics, life styles habits, personal and family medical history. Blood pressure, and anthropometric measurements (height, weight, waist circumference, hip circumference, neck circumference) were taken. HbA1C and glucose were measured in fasting blood samples glucose was measured again in a sample taken one hour after the ingestion of 50 g of liquid glucose (oral glucose challenge test - OGCT). A fasting value of ≥ 5.6 mmol/L, and/or one hour glucose value of $> 7.8 - 11.1$ mmol/L was considered to indicate IGT, while diabetes was suspected when fasting glucose value was ≥ 7.0 mmol/L, and/or one hour glucose value of > 11.1 mmol/L, and HbA1c $\geq 6.5\%$ confirmed the diagnosis. Characteristics of the two resulting groups were compared, and multiple logistic regression with IGT as the dependent variable was used to evaluate the lifestyle factors most significantly associated with IGT.

Results

A total of 678 adults were recruited for the study up to the end of August 2016. Complete data was found for 647 subjects. Following biochemical measurements, 13 individuals were suspected to be diabetics, and excluded from the study. 470 adults (mean age $\pm$ SD = 30.23 $\pm$ 10.83) were found to have normal glucose tolerance, and 164 (mean age $\pm$ SD = 37.5 $\pm$ 12.98) had IGT. Lifestyle, demographic, and anthropometric characteristics of the two study groups are presented in the table 1 and figures (1-3)

Table (1): Characteristics and Lifestyle of the two study groups (normal & IGT)

Variable	Normal (N= 470)	IGT (N= 164)	P value
Gender			
Male	201 (42.8%)	82 (50%)	0.121
Female	269 (57.2%)	82 (50%)	
Sleep duration (hr)			
<5	35 (7.4%)	21(12.8%)	0.075
5-6	121 (25.7%)	45 (27.4%)	
>6-7	126 (26.8%)	45 (27.4%)	
>7-8	123 (26.2%)	28 (17.1%)	
>8	65 (13.8%)	25 (15.2%)	
Sitting hours/ day			
<4	97 (20.6%)	38 (23.2%)	0.502
4-5	144 (30.6%)	50 (30.5%)	
6-8	141(30.0%)	40 (24.4%)	
>8	88 (18.7%)	36 (22.0%)	
Smoking habits			
Non smoker	337 (71.7)	122 (73.8%)	0.191
Smoker	72 (15.3%)	26(15.9%)	
Passive smoker	48 (10.2)	9 (5.5%)	
Previous smoker	13 (2.8%)	8 (4.9%)

Figure (1): Age groups of the two study groups (normal & IGT)

Figure (2): BMI categories of the two study groups (normal & IGT)

Figure (3): Physical activity of the two study groups (normal & IGT)

Following logistic regression with age and gender as additional confounders, age was found to be the strongest factor associated with IGT ($P<0.001$), this was followed by gender ($P= 0.009$), and physical activity ($P= 0.018$). However, when age was excluded, sleep duration became significantly associated with IGT ($P= 0.034$)

Discussion

Studies so far indicate a strong genetic predisposition to IGT in the Saudi population, augmented by aging [7]. However, our results indicate that lack of physical activity, and resultant overweight and obesity, appears to be the most important modifiable lifestyle factor associated with IGT. Inadequate sleep duration might also contribute. Firmer conclusions cannot be made till sample collection is completed.

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