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## Research Article

# Ilam Lipid and Glucose Study: A cross-sectional epidemiologic study

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### Abstract

**Background:** Development of urbanization and alteration in the lifestyle and age structure of the population (aging) increase the risk of non-communicable diseases (cardiovascular disease, diabetes, and stroke). The aim of this study was to evaluate blood glucose and lipid profile, and also estimate the percentage of people with lipids and fasting blood glucose disorders in the city of Ilam.

**Materials and Methods:** This research is a retrospective study. Therefore, in this study data collecting was performed from clinical laboratories in Ilam from 2006 to 2012. The sample size was determined by the Woodward's formula and all the statistical analyzes were performed using the SPSS-18 software.

**Results:** The results showed that the average amount of cholesterol, triglycerides, FBG, HDL-C, and LDL-C was equal to  $181\pm 21$ ,  $151\pm 17$ ,  $86\pm 7$ ,  $61\pm 8$ , and  $21\pm 3$  mg/dl, respectively. Also 25.2% of participants have Cholesterol disorder, 20.3% triglyceride disorder, 12.1% impaired fasting glucose, 18% HDL-C disorder, and 15.8% LDL-C disorder.

**Conclusion:** This study shows that the mean level of FBG and lipid profile in Ilam is almost identical to the normal values in western societies. Also, the prevalence of impaired FBG and plasma lipids disorders were relatively high in this city. Given these results, a health plan should be developed and the necessary training must be given to the people to reduce of these disorders.

**Key words:** Cholesterol, triglycerides, fasting blood glucose.

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### Introduction

Always to judge about a person is healthy or sick should have a reference range for each of the compounds (1). Definition Reference range of a substance is equal to two standard deviations in most healthy people in the area, but is that a healthy person does not define by itself (2).

Levels of some chemicals depend conditions of people's lives where they live and in some areas the rate of them specific to those areas and not generally considered to other regions. The absence of a reference

range, causing the patient to be seen as someone who is sick.. Metabolic disorders such as diabetes, increased blood pressure, high cholesterol level, purchasing habits of the causes of heart disease - the disease (3).

Effect of diabetes and hyperlipidemia and fat on heart disease was caused to doing important research in this background that aims to diagnosis and prognosis of patient (4) the research indicated that amount of fat and hyper lipidemia increased (5,6) diabetes is a glucose tolerance disorder(7) prevalence of FBS disorder in children is low (1.8%) and also in fat children is not high(2.5%). In different study prevalence of glucose tolerance disorder in fat children was reported 21-28 %.(8,9) we should done many different study now and by collection information for prevention of this problems. This study aims to measurement of prevalence of lipid profile and glucose disorders and prediction of normal range of parameters in Ilam city.

### **Materials and methods**

Recent study is an epidemiological study for appointment risk factor of noncommunicable diseases in urban people in Ilam from 2006 to 2011. In this study about 3500 laboratory data were collected ( age 20-55) from laboratories in Ilam city and analysis them. All of experiment was done with same kit. All of data was from healthy people that referring to check up without any disease history. Information about people that has diabetes and other syndromes was removed from study. Valium sample was appointment with Woodward formula and result of research analysis with SPSS (version 18.00) soft ware by k-score method.(  $P < 0.05$  was significant). This information sorted by sex. In this study used from normal range of parameters that obtained from west society.

### **Result**

In this study 3500 person studied tha1563 of them was mal and 1937 was female. The obtained result indicated the mean of cholesterol  $181 \pm 21$ , TG  $151 \pm 17$ , FBS  $86 \pm 7$  and LDL-C was  $21 \pm 3$  mg/dl. Also mean of all parameters calculated (table 1) the obtained result indicated that significant percent of this data was in normal range.

### **Lipid profile**

**LDL-C:** 84.2% of people were in normal range and 11.9% in prognosis range and 3.9% was in high risk range

**HDL-C:** 82 % of data was in normal range and 18 percent has disorder.

### **Cholesterol**

74.8 % of people was in normal range and 18.6 was in prognosis range and 11.2 was in high risk ringed.

**TG:** 79.7% was in normal range and 20.3 was in disorder range.

### **Glucose**

**FBS:** 89.7 % of data was in normal range and 4 % was in prognosis range and 8.1 % had diabetes. Actually 12.1 % had FBS disorder. (Table 2)

### **Conclusion**

This research indicated the normal range and disorders of glucose and lipid profile. As disorder in some parameters such as high level of cholesterol and LDL-C and low level of HDL caused too many disease such as coronary heart disease. Thus by achieving the normal range of disorders and compared them with other region can predict disease and prevention them. According to the Azizi et al research in 2002 in Tehran, mean of some disorders such as LDL-C, HDL and cholesterol was more than Ilam and people in high risk of HDL was equal. 22.8% of people was in high risk level while this amount in Ilam was 3.9 %, also 23.6 % of people of Azizi s research was in high risk level of Cholesterol while this amount in Ilam was 6.6 % (10) Fam et al indicated the relationship between HDL-C and body activity that the mean of this disorder in Tehran was more than Ilam that life style and amount of body activity caused to this difference. (11) amount of TG in high risk people in Ilam was more than Tehran. According to the Iarijani et al research, prevalence of diabetes in Iran 4.67% was reported that this amount in Ilam was 2 equal of mean of Iran. (12) Also Mansori et al research indicated that prevalence of mellitus diabetes is 6.8%. (13) that this amount in Ilam was 8.1, and according to this prevalence of dyslipidmia in Tehran is more than Ilam. (14,15,16,17) actually high prevalence of heart disease risk factor in Iranian adult patient has relationship with increasing of Mortality (18,19,20) Najafi pour et al studies indicated that FBS disorder in Ilam is more than Tehran that can realized that people in Ilam due to the diabetes more than Tehran people. (21) Today , main problem of treatment of this disease for patient is benefit them from of sufficient care and this matter need to early diagnosis and educating people about hygienic system. Iarijanis study in Boshehr indicated that prevalence of diabetes in male and female was 10.2 and 12.9%. (22) and in Sadeqi et al study s in Esfahan prevalence of diabetes 6.5% was reported. (23) also in azizi et al study in rural region in Tehran prevalence of diabetes 9.3 % was reported. (24) mean of glucose and lipid profile in Ilam in male and female was same. According to the obtained result prevalence of diabetes in Ilam is more than Esfahan and Boshehr and rural region of Tehran.

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**Table1; mean of parameters in male and female**

	<i>Female</i>	<i>male</i>
<i>LDL-C</i>	20.7	23.5
<i>HDL-C</i>	60.8	61.4
<i>Chol</i>	182	179
<i>TG</i>	149	153
<i>FBS</i>	86.6	85.4

\*\*mg/dl\*\*

**Table 2: compared of lipid profile in Ilam with Tehran city**

	<i>Range</i>	<i>Ilam (%)</i>	<i>Tehran (%)</i>	<i>P</i>
LDL-C	<i>&lt;normal 130 mg/dl</i>	84.2	49.5	0.001
	<i>At risk 130-160 mg/dl</i>	11.9	2.7	
	<i>High risk<sup>1</sup> &gt;160 mg/dl</i>	3.9	22.8	
HDL-C	<i>&lt; normal 35 mg/dl</i>	82	78.9	0.708
	<i>&gt; High 35 mg/dl</i>	18	21.1	
Chol	<i>&lt; normal 200 mg/dl</i>	74.8	45.4	0.001
	<i>At risk 200-240 mg/dl</i>	18.6	31	
	<i>&gt;High risk 240 mg/dl</i>	6.6	23.6	
TG	<i>&lt; normal 200 mg/dl</i>	79.7	71.8	0.005
	<i>At risk 200-240 mg/dl</i>	9.1	24.1	
	<i>&gt;High risk 400 mg/dl</i>	11.2	4.1	
FBS	<i>normal 70-115 mg/dl</i>	87.9	90.8	0.504
	<i>At risk 115-125 mg/dl</i>	4	4.8	
	<i>&gt;High risk 125 mg/dl</i>	8.1	4.4	