The prevalence of hyperglycemia and the probability of subsequent diabetes in Gorgan. At North –East of IRAN

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Abstract—**Objective: The screening strategy to diagnose diabetes considered to be a matter of urgency due to the very adverse side effects accompanied with this metabolic disease. Diabetes starts with chronic elevation of blood glucose, and prolonged hyperglycemia Therefore this study designed to investigate the pattern of hyperglycemia in this region.** Material and methods**: The data for this study was obtained from patient   referred to Danesh medical diagnostic laboratory in Gorgan, northern Iran 1279. Serum glucose level, were statistically evaluated using enzymatic reaction with photometric technique. The samples were from wide-range of society with different age. gender and ethnic groups.** Results **The findings of this study indicate that about 11% of sample population did show to have hyperglycemia and according to the extensive studies in the literature, if it was left undiagnosed and untreated, for, it may probably leads to diabetes. .** Conclusion**: In view of considerable adverse effect accompanied, with diabetes, such as cardiovascular renal and neurological lesion and therefore high prevalence of hyperglycemia in this region should be taken seriously**

Key words: Glucose- hyperglycemia- diabetes.
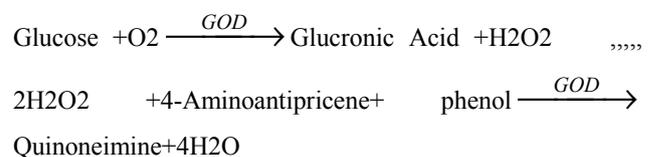
I.   INTRODUCTION:

The elevation of blood glucose . is clinically called hyperglycemia it seems the glucose of 110-115mg/dl is an acceptable higher, range of normal for the blood glucose, In fact the definition of hyperglycemia starts when the blood glucose level is in the range of 130mg/dl(1) and over and even this concentration of glucose can be considered organ threatening if it continued for considerable of time clinically when glucose level reached to 180 mg/dl and it passed the kidney ther shold, it begin to excreta through kidney tubular and kidney and release to the urine. The symptoms of diabetes, which is originated from high blood glucose, for a considerable of time to show itself. many not begin to show its clinical manifestations with 180mg/dl blood glucose level but the higher concentration of glucose of about 250-350mg/dl is required, till the adverse side- effect of hyperglycemia begin to show its catastrophic effects.(2,3,4) It hyperglycemia remain for a period time and diabetes start, unnoticed by and in fact hyperglycemia chronically remain, other adverse effects begin to show themselves among them are cardiovascular, renal and neurological can be mentioned.(2) In fact diabetes mellitus, are either insulin or non- insulin dependent, which are called type- I and type-II diabetes. respectively In type- I the lack of insulin, due to destruction of B- cell in pancreas is the causative factors in type-II, the insulin resistance at muscle cell membranes in which, practically responsible for elevated glucose (5)It should be mentioned other abnormalities such as growth hormone, and cortisol excess, are factor responsible for Thype-2 diabetes as well .. In regard to serious condition accompanied with hyperglycemia and its subsequent serious. metabolic complications such as kidney heart, brain, eye, disorders the present research project was designed to evaluated, the prevalence of hyperglycemia and probable diabetes, in Gorgan located in northern Iran.

II.   MATERIAL AND METHOD:

The data for this study was obtained from Danesh medical diagnostic laboratory at Gorgan, the patient name were excluded, and each patient was given, a code name for the purpose anomity. 1279 patients serum glucose level, statistically evaluated

Enzymatic reaction, if glucose oxidase. With phenol, and amio antipyrine as substrate was used to determine the glucose concentration as a photometric method as follow:

$$Glucose \ +O_2 \xrightarrow{GOD} Glucronic \ Acid \ +H_2O_2 \quad ,,,,,$$

$$2H_2O_2 \quad +4\text{-Aminoantipricene+} \quad phenol \xrightarrow{GOD}$$

$$Quinoneimine+4H_2O$$

III.   RESULTS:

The prevalence of serum glucose. Concentration of(192.33-240.01mg/dl) Is about 8%, it means in very optimistic look at this result 8% of our population, if remain chronically for period time, eventually entered into a full scale of diabetes. If the The upper range of fasting blood glucose for children and adult was considered to be 127 and 115mg/dl/ In practice the glucose concentration over

127mg/dl is considered hyperglycemia, regardless of being either children or adults The serum glucose concentration level are summarized in figure-1. the findings indicated about 11% do show to have glucose concentration(144-64-19 2.33)With optimistic consideration in our region 11% should considered for hyperglycemia.

If prevalence is looked more carefully there are also patients of having blood glucose of (287.70-383.03mg/dl), and also there are cases with the concentration of up to 430.35-478.43mg/dl) with rare preva
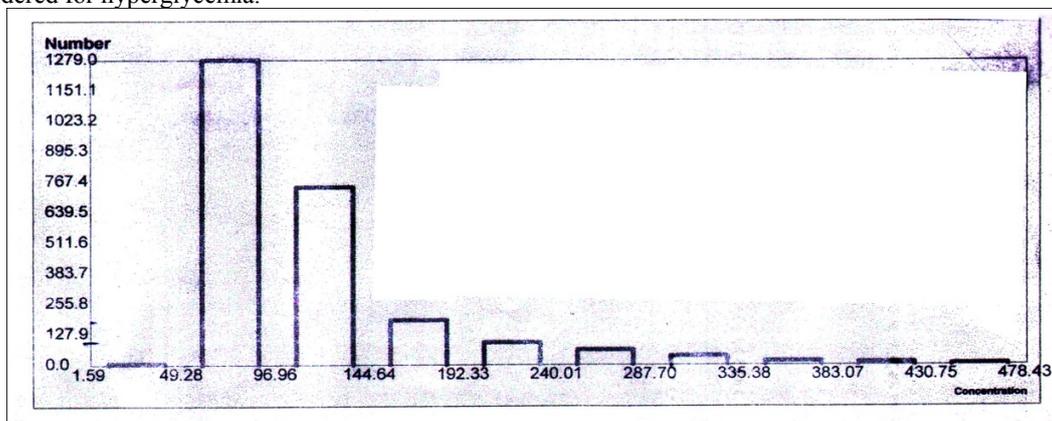

Figure-1 The pattern of glucose concentration mg/dl. at Gorgan, northern Iran

IV. DICUSSION:

The prevalence of diabetes is high, and it seems, the incidence of this metabolic disorder increased, (2,5). It is very important to trance the persons involved by the diabetes, whether type-1 or type-2 are a group of disorder in which the affected person shown to have elevated serum glucose the most optimistic prevalence of diabetes word-wide is about 8% of word population (2). In another report it is argued that the diabetes incidence increasing approaching to 5.6% within the year 2030(2).

Type-2 diabetes is more common, compared to type-1, the latter is insulin dependent. There are also report that although the diabetes is a disease, of rich and poor it seems, that in next decades, the Asian, and African countries have the higher incidence of diabetes which is probably is due to speed of industrialization (2). It seems the developed countries already experience the higher incidence of diabetes compared to developing countries(3). Although the incidence of two different of diabetes are varied across the world but 90-95% of diabetes, are type-II, and only about 10% are type-I, which occur due to the lack of insulin(3), the difference between the two type of diabetes first reported in 3rd decade of 2oth century(4), and although tremendously studied, and despite, the various types of treatment, diabetes, which is started with elevation of blood glucose and hyperglycemia, for enough time, to be chronic, is still, a disease with high morbidity and mortality(8) Our study also indicate a high portion of our society in this region of Iran experiencing high blood glucose which if it remain unchecked and chronic, eventually lead to diabetes. In this study. The main concern was to predict the hyperglycemia which was about 11%. It should be mentioned hyperglycemia and diabetes. are two different definitions , and diabetes is condition of prolonged hyperglycemia The

due to cardiovascular, neurological, renal and eye lesions(6,7) The simplest and economically cost-effectiveness. Laboratory tests is the measurements of Fasting blood glucose. (1)The diabetes mellitus, clinical manifestation of diabetes, will only occur after prolong exhibition of hyperglycemia. In our region it seems 11% of population are considered to be at risk of being at the door step of diabetes if the proper prevention method are not taken into consideration. In view of increasing epidemiology of diabetes in developing counties in Asia and Africa this present study can be an alarming point for the population resided within the northern Iran

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