

Prevalence of Hypertension in Type Two Diabetes Mellitus & it's State of Control

Dr. Kadhim Abbas Al-Hilali, F.R.C.P. (Glasgow)

Consultant Physician, Al – Hussain Hospital

Lecturer in the College Of Medicine, Kerbala University, Kerbala

Abstract:

One thousand five hundred patients with type two diabetes mellitus were studied, aiming to find the prevalence of hypertension and it's state of control in those people.

They were 777 females and 723 males. Their age ranged from (30 – 80) years (mean 52.5). The number of hypertensive patients among them was 816; the prevalence rate is 54.4%.

It was discovered that there was a high rate of control failure (76%) which was either due to patient noncompliance (69%), insufficient drug doses prescribed (46.8%), or to a unsuitable combination of drug regimes (33.4%).

الخلاصة

الف و خمسمائة مريض من داء السكري الغير معتمد على الانسولين تم دراستهم و ان غاية البحث هو ايجاد مدى انتشار مرض ارتفاع ضغط الدم و حالة السيطرة عليه عند هؤلاء المرضى والذين هم 777 اناث و 723 ذكور . تتراوح اعمارهم بين 30 – 80 سنة , بمعدل (52,5) . عدد مرضى ارتفاع ضغط الدم في هذه العينة هو 816 أي مدى انتشار قدره 54,4% . وقد أكتشف بان هنالك نسبة عالية من فشل السيطرة على المرض (76%) والتي تعود أما الى عدم التزام المريض (69%) , او عدم كفاية الجرعة الدوائية الموصفة للمريض (46,8%) أو الى عدم التناسب في الجمع بين الادوية (33,4%) .

Introduction:

Over the last decade there has been an increasing interest in the clinical association between hypertension and diabetes mellitus (1).

Hypertension is twice as prevalent in diabetic as in nondiabetic individuals (2). It has been clearly shown that hypertension in diabetes is associated with accelerated progression of both micro and macro vascular complications (1),(2), with the result of 4 – 5 fold increase in mortality predominantly from coronary

heart disease and stroke (2). The rationale for lowering blood pressure to a specific goal is to protect target organs from hypertension related damage and to reduce cardiovascular morbidity and mortality (3).

At the present time the American Diabetes Association recommends vigorous treatment of both hyperglycemia and hypertension when they occur, the expectation that reduction in microvascular and cardiovascular outcomes will be additive (4).

Patients & Methods:

One thousand five hundred diabetic patients were studied, they had the criteria of type two diabetes mellitus , i.e non insulin dependent , their age was above 30 years , and their hyperglycemia could be controlled with diet and/or oral hypoglycemics .

The study was conducted in the outpatient clinic of Al-Hussain Hospital from 10th July 2005 to 9th July 2006 , randomly, they were 777 females and 723

males ,their ages ranged from 30 to 80 years

The questionnaire included the record of : name , age , sex , the duration of both diabetes and hypertension , family history of both diseases , body weight , the measurement of blood pressure in the sitting position at three occasions and after 5 – 15 minutes rest before blood pressure record , any reading at or above 140/90 mm.Hg. in untreated patients or above 120/70 mm.Hg. while on treatment was considered high , then patients were sent for postprandial or fasting blood sugar according to the state of the patient, and any reading equal to or above 126mg. (fasting) or above 180mg. (postprandial) was considered high .Each patient was sent for urine sugar , and finally the drugs taken by the patient , their doses and their combinations were recorded .

The ideal test to control diabetes is Hb_{1C} , it is more important than random or fasting blood sugar in control and reduce micro-vascular complications , but unfortunately the test is unavailable .

Results:

The total number of diabetic patients studied was 1500 . 777 females and 723 males. Their age ranged from 30to 80 years with a mean of 52.4.

The total number of hypertensive patients seen in the sample was 816, 501 females and 315 males , making an average prevalence rate of hypertension in the sample by(54.4%) , compared with 13% in non diabetic people .

In the age group 30 – 50 there were 597 diabetic patients , out of them 210 were hypertensive patients,;; making a prevalence rate of nearly (35%) at this age group. Older than the age of 50 their were 903 diabetics ,among them 606 patients were hypertensives i.e a prevalence rate nearly (67%) at that age group, table(I) & fig.(I) .

It is also seen that the incidence of hypertension increases with the increase of age , this is also true to some extent for diabetics (table.I & fig.I) .

The number of uncontrolled diabetics, which was noted in the sample, was 1191 out of the total 1500 (80%), their postprandial blood sugar was more than 180mg, or fasting blood sugar above 126 mg.

The number of hypertensive patients who were ideally uncontrolled i.e. their blood pressure above 120/70 mmHg. was 620 out of the total hypertensives 816 (76%) (table.II).

Among them 428 were noncompliant (nearly 69%), 290 took insufficient drug doses

(46.8%), and 207 received unsuitable combination of drugs (33.4%) fig. II& table III.

Discussion:

Between 90 and 95% of diabetic people are type II ⁽⁵⁾. In these people hypertension is a common finding ⁽⁶⁾. This co-existence can accelerate other complications of **diabetes**, particularly cardiovascular diseases and nephropathy ⁽⁷⁾. Hence this makes it necessary to treat hypertension aggressively.

Intensive treatment of high blood pressure with a target below 135/85 mm.Hg. or even better 120/70 mm.Hg. now a days has been shown to slow the rate of deterioration of renal failure considerably ⁽⁸⁾. In addition, it works by decreasing the risks of cardiovascular disease mortality ⁽⁹⁾. Intensified hypertension control reduces cost and improves health outcome relative to moderate hypertension control. Hypertension has a high rate of prevalence in type II diabetes. Sixty nine to seventy one percent of American type II diabetics have a raised blood pressure (above 140/90 mm.Hg.)^{(11),(12)}. In Australia 50% of people with type II diabetes have hypertension ⁽¹³⁾ Hypertension may exist before diabetes is diagnosed. It is better to know the number of diabetics who later on developed hypertension, but this is a difficult way because it needs follow up study

for years similar to Framingham study in USA.

The prevalence of hypertension in diabetes increases as the age advances; this is also true for type II diabetes. The prevalence rate in the present study is 54.4% which makes it near to the Australian reports (as shown in Fig.1). In an isolated study done a year ago in Al-Hussain hospital aiming to know the prevalence of isolated hypertension (without diabetes) ,out of 2816 adult Iraqi person who accompanied their relative patients to the out patient clinic , 376 person were found to have isolated hypertension , making a prevalence of nearly 13% (13.35%). This is to be compared with the prevalence of hypertension associated with type II diabetes which is 54.4% in our current study .The number of uncontrolled diabetes and hypertension is high worldwide , even in the well educated and wealthy countries (USA & Europe). This is to be expected in our country.

In this study, the number of uncontrolled diabetes was 1191; i.e. (80%). The number of uncontrolled hypertension was 620 out of the total 816; i.e. (76%) .

The causes of uncontrolled hypertension were analysed and were found : 428 patients (nearly 69%) were non compliant . 290; i.e. (46.8%) used drugs regularly , but in an insufficient doses and still others 207 ; i.e. (33.4%) used drug combinations in an

unsuitable way e.g. the use of methyldopa and vasodilators as the first choice or combining diuretics with vasodilators or betablockers with Angiotensin converting enzyme inhibitors etc .. In the recent reports : the guidelines of treatment of both diabetes and hypertension stressed on :-

- (1) Intensive glycaemic control.
- (2) Aggressive treatment of hypertension to a goal of 120/70 mm.Hg.
- (3) Adopting a healthy life style ⁽¹⁴⁾ e.g. reducing weight for the obese , regular physical exercise , low fat and salt diet , stop smoking etc ..
- (4) The use of Angiotensin converting enzyme inhibitors (ACE) as the first choice antihypertensives, then proceed to calcium channel blockers as second choice according to recent reports then betablockers or diuretics .Some use Angiotensin II receptor blockers instead of or with (ACE) inhibitors .Most reports advice the use of (ACE) inhibitors ⁽¹⁵⁾ specially when proteinuria is present . This is also true for calcium channel blockers.

References:

- 1- Epstein M.Sowers JR. Diabetes Mellitus and hypertension, Hypertension, 1992; 19: 403-418.
- 2- Richard E. gilbert, mariusz Jasik, Mario deluise , Chris Jo. Callaghan and Mark E

Cooper, Diabetes and hypertension MJA 1995; 163:372-375.

3- Arch. Intern Med/vol. 163 / march 10, 2003 p 521-525.

4- UKPDS results and implications of intensive blood pressure control in type II. Basic clinical endocrinology 7th edition 2004, p 687-688.

5- Caroline S. Rhoads, Alan Dalka, Hypertension and diabetes medical review last updated, October 29, 2003, health wise, copyright @ 2005, yahoo incorporation.

6- World hypertension league -Hypertension and diabetes:

<http://www.meduohio.edu/whl/hypdia.html>

7- Alvin C. powers. Hypertension in diabetes, Harisson s principles of internal medicine 15th edition 2001 p.2125.

8- EmA Gale and JV Anderson. Diabetes Mellitus and other disorders of metabolism - Kumar and Clark clinical Medicine 5th edition 2002 p.1092-1096.

9- Saul Genuth. Hypertension in type II diabetes mellitus. Scientific American Medicine, 2003 edition vol.1 p. 605.

10- Center of Disease Control, diabetes cost effectiveness group, cost effectiveness of intensified hypertension control May 15 , 2002 . P. 2542.

11- Sid kirchheimer. Reviewed by Brunilda Nazario , Hypertension control urged for diabetes :

<http://my.webmd.com/content/article/63/718531src=inktomi&condition=diabetes>

12- American Diabetes Association, Treatment of Hypertension in adults with diabetes (position statement) Diabetes care 25: 199-201. 2002.

13- George Jerums. Hypertension and Diabetes. AMJ: www.diabetes australia .com:au /conquest /0203 -Hypertension html

14- Christopher N. Dubuka, Irobunda - Hypertension in diabetes, Hypertensionhelp.com-Microsoft internet explorer.

15- Richard C. Gilbert etal MJA 1995; 163: 372-375.

16 American Diabetes Association , treatment of Hypertension in diabetes (Consensus statement) Diabetes care 1993; 16: 1394-1401.

Table I. Age distribution in years in both Diabetes & Hypertension

Age group	No. of diabetics	No. of Hypertensives
30	3	0
31-40	147	10
41-50	447	200
51-60	594	396
61-70	300	207
71-80	9	9
Total	1500	816

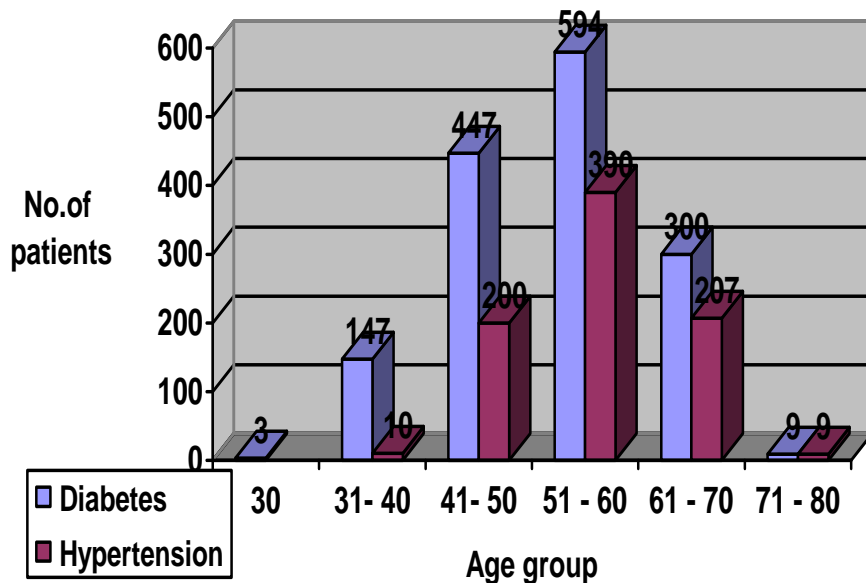


Fig.I Age distribution histogram of both Diabetics and Hypertensives in the sample

Table II. The state of control of both Diabetes and Hypertension in the sample

Remarks	Controlled Diabetics	Controlled Hypertensives	Uncontrolled Diabetics	Uncontrolled Hypertensives
No. of patients	309	196	1191	620
Percentage	Nearly 20%	Nearly 24%	Nearly 80%	76%
Total				1500

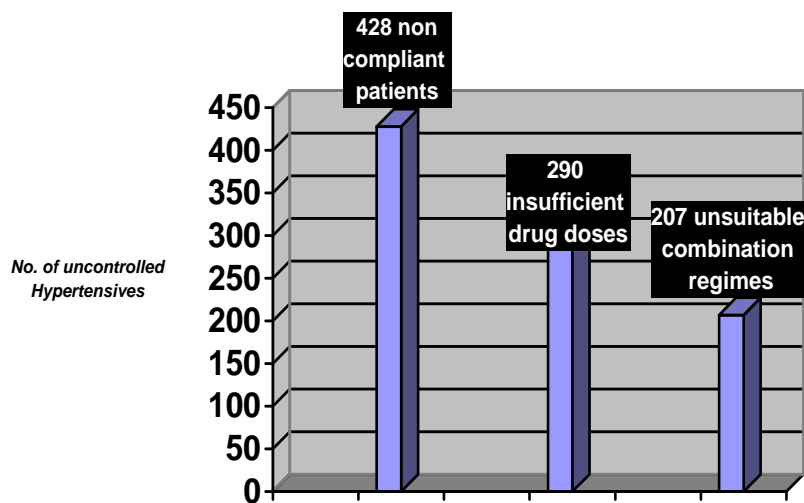


Fig.II. Frequency distribution of the causes of uncontrol in the hypertensive diabetic people

Table III. Causes of uncontrolled Hypertension and their percentage of the total 620

Cause	No. of patients	%
Non compliance	428	69
Insufficient drug doses	290	46.8
Unsuitable combination regime	207	33.4