Assessing risk factors for hypertension among adults in Mosul

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Abstract

**Background**: Hypertension is a major public health problem. Despite extensive research in the etiology and contributing causes of essential hypertension, the pathogenesis of the condition is still not explained. Hypertension is probably multi-factorial.

**Objective**: To determine the prevalent risk factors of hypertension and its degree of association among adult patients in Mosul.

**Patients and Methods**: Study subjects include 50 adult patients from both sexes. Data collection period was two months. A comparative study design has been adopted. A special questionnaire form has been prepared and filled in by the investigator himself for each patient through direct interview with patients.
**Results:** Study results revealed a statistically significant association for the disease with middle aged male gender, unskilled occupations, type A personality, non-cigarette smoking, positive family history for hypertension and unhealthy dietary behavior. On the other hand, a negative statistical association has been proved between the disease and smoking, physical activity.

**Conclusion:** Encouraging hypertensive patients for essential lifestyle changes including adopting regular physical activity, controlling proper body weight, following a proper dietary regimen and quitting smoking and alcohol, reduce stress as much as possible, looks to be an urgent necessity.
Introduction

Hypertension is abnormal elevation of blood pressure. It’s extremely common, being present in 20-30% of the adult population with even higher rates in black Africans. It’s associated with significant morbidity and mortality from vascular disease (heart failure, ischemic heart disease, cerebrovascular disease and renal failure). Hypertension is asymptomatic, although rarely in severe hypertension, headaches and visual disturbances occur.
In the year 2000 it is estimated that nearly one billion people or nearly 26\% of the adult population have hypertension worldwide. It was common in both developed (333 million) and undeveloped (639 million) countries. However, rates vary markedly in different regions with rates as low as 3.4\% (men) and 6.8\% (women) in rural India and as high as 68.9\% (men) and 72.5\% (women) in United States. (2).
In 1997 it is estimated that 43 million people in the United States had hypertension or were taking antihypertensive medication, almost 24% of the adult population. The prevalence of hypertension in the United States is increasing and reached 29% in 2004. It is more common in blacks and less in whites and Mexican Americans, rates increase with age, and is greater in the southeastern United States. Hypertension is more prevalent in men (though menopause tends to decrease this difference) and those of low socioeconomic status, over 90–95% of adult hypertension is essential hypertension (3).
Experimental and clinical observations on arterial hypertension are consistent with the theory that: (1) Repressed psychic disturbances of a more or less specific nature lead to increased activity of the sympathetic nervous system; (2) sympathetic stimulation may raise blood pressure acutely but also produces renal ischemia and stimulates the adrenal cortex to activity; (3) renal ischemia leads to the production of presser substances and therefore hypertension; (4) hypertension itself causes arteriolar sclerosis, especially in the kidneys, resulting in more renal ischemia; (5) adrenal cortical activity can lead by itself to hypertension. When organic renal or urologic disease is also present, the hypertension may be more severe. When the predominant influence arises in the adrenal cortex, the disease presents different clinical manifestations(4).
The list of risk factors for Hypertension includes:

- Obesity
- Overweight
- Diabetes
- Renal diseases
- Age
- Race (particularly common among blacks and often develops at an earlier age than it does in whites)
- Family history of high blood pressure
- Pregnancy or oral contraceptive
- High salt diet
- High saturated fat diet
- Lack of exercise
- Poor physical fitness
- Alcohol
- Stress
- Inactivity

It is possible to develop hypertension with or without the risk factors listed above. However, the more risk factors you have, the greater your likelihood of developing hypertension. If you have a number of risk factors, ask your healthcare provider what you can do to reduce your risk.
CAUSES OF HYPERTENSION

There are two types of high blood pressure:

1- **Primary (essential) hypertension**: there’s no identifiable cause of high blood pressure. Occurs in more than 90% of patients with hypertension.

2- **Secondary hypertension**: it’s rare, occurring in less than 10% of the hypertensive population. Causes include: kidney problems (renal artery stenosis, polycystic kidney disease), adrenal gland tumors (phaeochromocytoma, Cushing’s syndrome), certain defects in blood vessels (coarctation of the aorta), certain medications (such as birth control pills, cold remedies, decongestants), illegal drugs (such as cocaine and amphetamines).
Individuals at risk for developing hypertension

Hypertension is more common in people:

- With diabetes. About 3 in 10 people with type 1 diabetes and more than half of people with type 2 diabetes eventually develop high blood pressure.
- From African-American origin.
- With advanced age.
- With a family history of high blood pressure.
- With certain lifestyle factors. That is, those who: are under stress, overweight, eat a lot of salt, don't eat many fruit and vegetables, don't take enough exercise, or drink a lot of alcohol (8).
Complications of hypertension

1- Blood vessels: arteriosclerosis, atheroma, aneurysm, aortic dissection.

2- Central nervous system: stroke, carotid atheroma, cerebral ischemic attacks, subarachnoid hemorrhage

3- Eyes: hypertensive retinopathy.

4- Heart: left ventricular hypertrophy, left ventricular failure, atrial fibrillation.

5- Kidneys: proteinuria, progressive renal failure.
Method of the study:

1. Place of the study
The study is conducted in Ibn Sina hospital.

2. Period of the study
The study is done in two months collections of data (February and March of 2013)

3. Tools of the study
Questionnaire is formed to use to calculate the information from the records of patient and hospital.

4. Type of study
The survey was done by comparative study.
Aim of the study:

To find out the Risk Factors of Hypertension and thereby Prevent or at least delay its appearance.
Objectives:

To find:
1-The role of smoking in hypertension.
2-The role of occupation in hypertension.
3-The role of BMI and family history of hypertension in hypertension.
4-The role of age and type of personality hypertension.
5-The role of physical activity in hypertension.
### Results

**Table (I): Relationship between smoking and age in hypertensive patients.**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Smoking</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>smokers</td>
<td>Non-smokers</td>
<td>Ex-smokers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-39</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>40-59</td>
<td>8</td>
<td>20</td>
<td>1</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>&gt; 60</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>32</td>
<td>4</td>
<td>50</td>
<td></td>
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</table>
Table (II): Relationship between BMI and occupation in hypertensive patients

<table>
<thead>
<tr>
<th>BMI</th>
<th>Occupation</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>Normal weight</td>
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<td>3</td>
</tr>
<tr>
<td>Over weight</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Obese</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>11</td>
</tr>
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</table>
Table (III): Relationship between BMI and Family history of hypertension in Hypertensive patients

<table>
<thead>
<tr>
<th>BMI</th>
<th>Family history of hypertension</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>present</td>
<td>absent</td>
</tr>
<tr>
<td>Normal</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Over- weight</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Obese</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>
Table (IV): Relationship between age and type of personality in hypertension patient

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Type of personality</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type A</td>
<td>Type B</td>
</tr>
<tr>
<td>20-39</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>40-59</td>
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<td>9</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>22</td>
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</table>
### Table (V): Relationship between smoking and physical activity in hypertensive patients

<table>
<thead>
<tr>
<th>Smoking</th>
<th>Physical activity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Active</td>
<td>Inactive</td>
</tr>
<tr>
<td>Smokers</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Non-smokers</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Ex-smokers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>
Conclusions:

It is noted that:

1. The most common group having hypertension is at age (40-59) years and the least group is at (20-39) years. The most common is the non-smokers and the lesser is the ex-smokers.

2. The most common group of BMI having hypertension is the overweight group, and the least group is the normal weight. The most common group in occupation is unskilled, the least common is partly skilled group.

3. The most common group with hypertension had family history of the disease.

4. The most common group with hypertension had personality of type A.

5. The hypertension is more common in physically inactive people than the active groups.
6-Most patients in the survey were preferring little fatty and high salty diets.

7-Most patients in the survey had no past history of medical problems including renal troubles, diabetes mellitus and others.
Recommendations

1. Eating healthy foods (fruits, vegetables, whole grains, low fatty foods).
2. Decreasing the salt in the diet.
3. Maintaining a healthy weight.
4. Increasing physical activity.
5. Limiting smoking and alcohol.
7. Monitoring blood pressure at home.\(^{(10)}\).