

HYPERTENSION AND FAMILY HISTORY IN MISSAN: A CASE-CONTROL STUDY

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ABSTRACT

In this case-control study, family history, as a risk factor for hypertension, was assessed in 464 patients with proved hypertension revealing 247(53.2%) hypertensive patients with positive family history of this disease as compared to 26.4% of normotensive control subjects with positive family history of hypertension. More frequent hypertensive mothers were recognized as a first degree relative to both hypertensive and normotensive patients inquired about family history of hypertension.

INTRODUCTION

Elevation of the systemic arterial pressure represents one of the most common problems in clinical medicine^[1]. High blood pressure is a trait as apposed to a specific disease and represents a quantitative rather than a qualitative deviation from the norm^[2]. The definition of hypertension is arbitrary. This is mainly because cardiovascular risk increases with increasing blood pressure levels, as a consequence, the dividing line between normotension and hypertension is difficult to establish in individual patients^[3]. The current arbitrary definition of hypertension is taken as a level of systolic blood pressure of 140 mmHg or above and/or a level of diastolic blood pressure of 90mmHg or above under satisfactory conditions of measurement^[3]. Hypertension can only be diagnosed by measurement of blood pressure^[3]. In 95% of hypertensive patients in general practice, a single reversible cause of the elevated blood pressure cannot be defined (primary hypertension), in the remaining 5% a more discrete mechanism can be identified^[4] (secondary hypertension). Hypertension can be viewed as a maladaptive interplay between human genome and modern society^[4]. Genetic alteration may initiate the cascade to permanent hypertension^[5]. If genetic markers of predisposition to develop hypertension are found, specific environmental manipulations could then be directed toward those susceptible subjects^[5]. Essential hypertension often runs in families and studies of blood pressure in twins and adopted children further suggest that genetic factors play a major role in this familial tendency^[6]. Hypertension occasionally causes headache but, provided there are no complications, most patients remain asymptomatic, accordingly, the diagnosis is usually made at routine examination or when a

complication arises^[7]. Even in its mild forms, hypertension is progressively lethal disease if left untreated^[8]. It follows that identification and management of symptom less hypertension will help to reduce the mortality as well as the incidence of its serious complications^[9].

Aims of study, to shed light on the effect of family history as a risk factor for hypertension among family members in Missan governorate and to consider preventive strategies for members at high risk to have this disease.

PATIENTS AND METHODS

In this case-control study, two groups of patients were included, the first group included patients with proved hypertension and the second one included subjects with out hypertension (control group). Subjects were seated and resting comfortably and blood pressure was measured by standard mercurial sphygmomanometers with cuffs 14 cms. wide. Blood pressure of more than 140 mm.Hg. systolic and/or diastolic of more than 90mm.Hg. is considered to be abnormal for the sake of this study. Hypertensive patients and normotensive control subjects were questioned as to any first-degree family history of hypertension. Family history of hypertension is defined as verified essential hypertension in one or both biological parents or siblings. Hypertensive patients were those with previously diagnosed hypertension and those who were newly diagnosed hypertensives in the outpatient clinic in the main general hospital in Al-Ammara from October 2004 to February 2005. Normotensive subjects (*control group*) were been out of those attending the same outpatient clinic. To increase the accuracy of the results in our study, we excluded subjects who were not quite sure about the family history of hypertension among their

first degree relatives. We classified family history of chronic hypertension as no history (*negative*) or any history (*positive*). Patients of all age groups were included in the study. Parameters taken into consideration were sex, presence of positive family history of hypertension, and the hypertensive relative (*father, mother, or siblings*). We classified those with positive family history of hypertension into

maternal, paternal, maternal and paternal and siblings.

RESULTS

Out of the 464 patients with proved hypertension, 247(53.2%) hypertensive patients were found to have positive first-degree family history of hypertension with slightly higher percentage of females with positive family history of hypertension than that of males (Table-1).

Table 1. *Family history of hypertension among hypertensive & sex distribution.*

Family history	No. of patients	%	Female	%	Male	%
Positive	247	53.2	185	54.7	62	49.2
Negative	217	46	153	45.3	64	50.8
Total	100	100	338	100	126	100

The inquiry about family history of hypertension among normotensive subjects (*control group*) revealed that out of 572 patient's

only 151(26.4%) patients were found to have positive family history of hypertension with slight excess among females. (Table-2)

Table 2. *Family history of hypertension among control group (normotensive subjects) & sex distribution.*

Family history	No. of patients	%	Female	%	Male	%
Positive	151	26.4	84	28.8	67	23.9
Negative	421	73.6	208	71.2	213	76.1
Total	572	100	292	100	280	100

Among the 247 hypertensive with positive family history of hypertension, 99(40.1%) patients were found to have hypertensive mothers, 71(28.7%) patients with both hypertensive fathers and mothers, 41(16.6%) patients with hypertensive fathers and the remaining 36(14.6%) patients had hypertensive

siblings. Among the normotensive controls with positive family history of hypertension, hypertensive mothers were recognized in 58.3% of relatives forming the most frequent hypertensive relative related to normotensive control group subjects. The details are shown in (Table-3).

Table 3. *The first-degree hypertensive relative among hypertensive patients with positive family history.*

First degree relative	Patients		Controls	
	No.	%	No.	%
Hypertensive mother	99	40.1	88	58.3
Hypertensive F & M	71	28.7	30	19.9
Hypertensive father	41	16.6	24	15.9
Hypertensive siblings	36	14.6	9	5.9

DISCUSSION

In this study we try to verify the relation of family history of hypertension to the susceptibility of family members to have this disease. It is said that family history of a chronic disease, such as high blood pressure, is an important predictor of future disease^[10]. We don't have similar studies, in Missan

governorate, to compare the results of our study with. In this study, 53.2% of hypertensive patients were found to have positive family history of hypertension, (Table-1). An increased risk of hypertension for family members with family history has been found in many studies among different populations. In a study in

industrialized countries, the risk of becoming hypertensive for an individual with family history of hypertension has been estimated to be up to four times higher than the average^[11]. In another study, the genetic contributions in hypertension have been estimated to range from (30-60%)^[5]. In other study, a significant number of hypertensive subjects reported a family history of hypertension (80%)^[14]. The impact of parental hypertension on future risk is most likely the result of shared genes, learned behaviors, shared environments or various combinations^[13]. In other study, subjects with positive family history of essential hypertension had higher systolic blood pressure levels and stronger increases in systolic blood pressure over time than subjects with negative family history of hypertension^[16]. Hypertension is also more common in some ethnic groups and approximately 40-60% is explained by genetic factors^[7]. Through our study, 151(26.4%) out of 572 normotensive subjects (control group) were found to have positive family history of hypertension, (Table-2). Normotensive subjects with positive family history, especially those who are young, are not necessarily protected from being hypertensive in the future. It is said that, there is evidences that hypertension is a relatively late manifestation of the disease process, thus normotensive people with family history of hypertension have been classified as "normotensive hypertensives"^[12]. A study reported in the May issue of Health Psychology, finds that offspring of hypertensive parents react more negatively, both behaviorally and physiologically, to stressful situations^[15]. According to other study, offspring who have hypertensive parents not only exhibit exaggerated physiological reactivity to stress but also exhibit learned maladaptive behavioral responses to stress^[15]. Such findings may indicate that complementary application of strategies that targets the general population and individual at high risk may be considered as preventive measure for this disease. Through our study, 40.1% of hypertensive patients had history of hypertensive mothers (*maternal history*), 28.7% of them had history of both mother and father were being hypertensive, 16.6% of them were with history of hypertensive fathers (*paternal*) and only 14.6% of patients gave history of hypertensive siblings,

(Table-3). In our study, it seems that maternal history of hypertension conferred more degree as a risk factor for hypertension than paternal or sibling history. In other study, maternal history of hypertension conferred a degree of risk similar to that of paternal history^[17]. In another study, population studies have shown a greater correlation of blood pressure between siblings than that between parents and their children^[19]. In other study in Western Europe and the United States, blood pressures of parents and their natural children are highly significantly correlated (r 0.3), whereas those of adopted children are not^[20]. In our study more hypertensive mothers were also recognized as the first-degree relative to normotensive patients with positive family history of hypertension (Table-3). Higher percentage of maternal history of hypertension among both hypertensive and normotensive patients may be due to more prevalence of hypertension among women than men especially after the postmenopausal age. In a study conducted on samples of Iraqi communities in 1982, the level of awareness of hypertension was much higher among females of both urban and rural communities^[9]. In another study, women have slightly lower pressures than men in the third and forth decades and slightly higher ones thereafter^[20]. In other study in Framingham, Massachusetts, 37% of men and 51% of women who died of cardiovascular disease had been noted previously to have had an arterial pressure over 140/90 on at least three occasions^[16]. In our study the percentage of hypertensive and normotensive women with positive history of hypertension was slightly higher than that of men-(Table-1,2). In our study also, the percentage of hypertensive women with positive family history (54.7%) was slightly higher than hypertensive women with negative family history (45.3%) (Table-1). This finding is comparable to the results of other study in which, there was more often hypertensive females with positive family history of hypertension compared with those who did not report such history^[21]. Family history of hypertension may not only contribute to incidence of such disease among family members, but may make them more vulnerable to have other associating health problems. In a study, higher blood pressure is linked to

depression, but only in people with family history of hypertension, the association between depressive symptoms and blood pressure was weakest for those with no hypertensive parents, moderate for those with one hypertensive parent, and strongest for those with parents who had high blood pressure^[13]. Another study showed that, having two or more family members with hypertension imparted a significant, two-fold elevation in risk of preeclampsia and transient hypertension of pregnancy^[22]. It is said that when an index case of hypertension is found, other family members should be examined^[18]. Most studies support the concept that inheritance is probably multifactorial^[7]. The results obtained through our study are consistent with the results of other studies with respect to the role of family history of hypertension as a risk factor for such disease among members of families.

In conclusion, family history of hypertension is a significant risk factor for hypertension in Missan governorate and health professionals should, therefore utilize every opportunity to include family members, with positive family history of hypertension, in health education programs with particular emphasis on the environmental factors that may increase the probability of this disease which is described as silent killer.

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