Indian J Physiol Pharmacol 2003; 47 (2) : 233–235

*LETTER TO THE EDITOR*

# INFLUENCE OF FAMILIAL HYPERTENSION ON BLOOD PRESSURE, SERUM CHOLESTEROL, HIGH DENSITY LIPOPROTEIN CHOLESTEROL DURING SECOND AND THIRD DECADE OF LIFE IN PUNJABI POPULATION

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**(Received on October 30, 2002)**

An elevated arterial pressure is probably the most important public health problem these days. Although hypertension may be diagnosed and treated easily, but as it is asymptomatic in most of the cases initially, therefore if left untreated or not treated effectively it may lead to severe complications such as coronary artery disease, congestive heart failure and stroke etc (1). In addition to a number of environmental factors e.g. obesity, occupation, alcohol intake, salt intake etc., genetic factors also have long been assumed to be important in the genesis of hypertension. From time to time various studies supporting the role of heredity had been published in literature (2, 3). Hypertensive vascular disease which manifest later in life is being implicated to have its origin either in infancy or in early childhood. The incidence of hypertension at an early age has definitely shown a rising trend in children having positive family history of hypertension (4). Many workers have also shown co-relation of hyperlipidemia with early hypertensive heart disease in young individuals (5). Keeping in view all these facts and to add to the already existing data the present study was planned to evaluate Blood Pressure, Serum Cholesterol, High Density Lipoprotein-Cholesterol on 200 cases in the 2nd and 3rd decade of life in Punjabi Population by the Department of Physiology, Govt. Medical College, Amritsar. The cases were divided into two groups-I and II consisting of 100 cases in each decade. Each group was further divided into two sub-groups Ia and Ib, IIa and IIb, having 50 cases in each group. Cases of group-Ib and IIb were children of hypertensive parents visiting medical outdoor for treatment. Whereas cases of Ia and IIa belonged to children of healthy parents with negative family history of hypertension. In addition to family history of hypertension, detailed history and Physical examination of every case was done to exclude any other disease such as Diabetes mellitus, bleeding disorder etc.. All the tests were done between 9 to 10 AM. Blood pressure of each case was measured in supine position with a mercury sphygmomanometer and a stethoscope following the recommendation of American Heart Association (6). The systolic blood pressure was determined at the point at which the Korotokoffs sounds became audible (Phase-I), whereas diastolic blood pressure was measured at the complete disappearance of the Korotokoffs sounds

TABLE I: Comparison of SBP, DBP, serum cholesterol, high density lipoprotein – cholesterol and total cholesterol/high density lipoprotein – cholesterol ratio between Ia, Ib and IIa, IIb groups.

| *Group* | *SBP (mm of Hg)* | *DBP (mm of Hg)* | *S-cholesterol (mg/dl)* | *HDL-C (mg/dl)* | *Choles/ HDL-C ratio* |
|---|---|---|---|---|---|
| Group-I 11–20 yrs. (16.28±2.79) | | | | | |
| Ia | 109.04±2.46 | 78.64±3.04 | 166.49±5.75 | 51.92±3.29 | 3.22±0.26 |
| Ib | 119.76±6.78 | 82.96±4.28 | 209.68±28.02 | 44.01±8.12 | 5.04±1.64 |
| Ia vs Ib | t = 7.68 P<0.001 HS | t = 4.54 P<0.001 HS | t = 7.66 P<0.001 HS | t = 4.71 P<0.001 HS | t = 5.54 P<0.001 HS |
| Group-II 21–30 yrs. (25.36±2.63) | | | | | |
| IIa | 118.24±1.76 | 79.12±2.32 | 135.15±7.21 | 48.08±4.08 | 2.83±0.30 |
| IIb | 130.12±8.62 | 85.48±4.88 | 223.06±37.49 | 34.97±8.29 | 6.79±2.31 |
| IIa vs IIb | t = 6.85 P<0.001 HS | t = 6.21 P<0.001 HS | t = 11.66 P<0.001 HS | t = 7.51 P<0.001 HS | t = 8.57 P<0.001 HS |

(Phase-V). The mean of the two consecutive measurements was taken as final reading. Cases having systolic blood pressure of 140 mm Hg or greater and/or diastolic blood pressure of 90 mm of Hg or greater at more than two occasions were labelled as hypertensive (7).

To estimate Serum Cholesterol and High Density Lipoprotein-Cholesterol, 10 ml of blood was withdrawn from antecubital vein of each subject under aseptic conditions. Serum was separated and used for estimation of Serum Cholesterol (8) and Serum High-Density Lipoprotein-Cholesterol (HDL-C) (9). The results were tabulated. (Table I) and comparison of data and significance levels were determined using students 't' test. Our results showed that the systolic blood pressure, diastolic blood pressure, serum cholesterol, serum cholesterol/HDL-C ratio were significantly high and HDL-C was significantly low in cases of Ib and IIb as compared to Ia and IIa groups respectively, indicating that the cases having positive family history of hypertension are more prone to suffer from high blood pressure and hyperlipidemia as compared to those having negative family history of hypertension. Our results matched with the findings of other authors (3, 4, 10). On further analysis of data (Table-II), it was observed that percentage prevalence of hypertension increased with increase in age in off springs of hypertensive parents. Similar findings had been reported in general population also (11), but siblings

TABLE II: Showing percentage of cases suffering from hypertension in Ib and IIb groups (with positive family history of hypertension).

| *Group* | *Total cases* | *Hyper-tensive* | *Non-hypertensive* | *%age of hypertensive* |
|---|---|---|---|---|
| Group-Ib | 50 | 2 | 48 | 4% |
| Group-IIb | 50 | 15 | 35 | 30% |

of hypertensive parents develop hypertension at much younger age as compared to general population.

The goal of early identification of blood pressure elevation and hyperlipidaemia is to minimize the hypertensive damage to heart as well as to prevent premature coronary artery disease. It also helps in preventing damage to other vital organs due to above-mentioned factors. Therefore for early detection of hypertension it is essential that screening of children having positive family history of hypertension must be done as a routine measure.

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