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Dyslipidemias in normotensive and hypertensive individuals.

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Key words: Hypertensive, Normotensive, Serum lipids, phospholipids and Lipoprotein cholesterol

ABSTRACT : The present work was carried out to compare the effects of age and antihypertensive therapy on lipid profile in hypertensive and normotensive individuals. A total of 150 individuals were used for the study.100 hypertensive under therapy were used and 50 normotensive served as control. Serum lipid (Cholesterol (T -chol) , triglyceride (TG), Phospholipids (PL),High density lipoprotein(HDL-chol), Low density lipoprotein(LDL-chol) and very low density lipoprotein (VLD L- chol) were biochemical parameters monitored. The normotensive studied had mean age of 50 ± 11 years and blood pressure of 117 ± 6 / 77± 6 mmHg. The hypertensive had mean age of 55 ± 10 years and blood pressure of 177±25 /103 ± 10 mmHg.The study revealed that there was a highly significant effect of age on total cholesterol in hypertensive than normotensive individuals .The mean total cholesterol (T -chol) and triglyceride (TG) were (156±11, and 59 ± 4) mg/dl respectively for the normotensives; and hypertensive the means were 166 ± 13 for the T –chol and 66± 7 mg/dl for triglyceride (P<0.05). Similarly, a significant lower phospholipids level of 158±8 mg /dl was obtained for normotensives, hypertensives had a mean (165± 11 mg/dl, P<0.05). However, HDL-chol was lower in hypertensives (57± 10) mg/dl than in normotensives (64± 13) mg/dl). Hypertensive patients also recorded higher mean values of LDL-chol (95± 17) mg/dl than the normotensives with mean values of 81± 15 mg/dl for LDL- chol. Marginally higher level of VLD L- chol was observed in hypertensive patients as well compared to normotensive individuals VLD L- chol(13± 2)mg/dl and 12 ± 1 mg/dl for VLD L-chol(P<0.05). © JASEM

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Hypenension is increasingly being recognized as a deadly disease plaguing our society.It could be asymptomatic and may lack traditional mode of symptoms and signs which may lead to easy and early diagnosis of a disorder (Michael, et al 1987). Essentially, little about the cause of the disease is known (Naal, et al 1982, Kannel, 2000) and some people have gone as far as saying that it is the body way of ensuring essential adequate perfusion of the disease tissue (Ian and William, 1975).However, hypertension is regarded as a disease of a multifactoral standard related to abnormalities of regulatory mechanisms which are normally concerned with the homeostatic control of arterial pressure.

Platt (1959) believed in the genetic inherence of essential hypentention and thought the genetic code of essenrial hypertention to behave as Mendelial dominant fashion. Pickering (1971) and his associate had a different view on the genetic expression of arterial blood pressure.They abserved that the inheritance is multifactoral or polygenic. Some factors that therefore contribute to high blood pressure are smoking, lack of physical activity, overweight, high sodium (salt) intake, high cholesterol, excessive intake of alcoholic beverages, and heredity as stated. Diabetes patients also are at greater risk for high blood pressure and other cardiovascular diseases.Conversely, the disease is cutting across all ages particularly ages 30 and up.Most often, the mishandling of condition has resulted to stroke and high degree of mortalities in patients with this condition.

The studies of Garg and Grundy (1990), Jabeen M, et al (1985), Krauss (1994) Nordestgaard and Nielsen (1994), Thannhauser, (1974). Wilson, et al (1981) have carried out various studies on the levels of serum lipids, phospholipids and lipoprotein

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cholesterol in patients suffering from diabetes and hypertension.It was found out to be high**.**The present work was then carried out to compare the effect of age on lipid profile in normotensive and hypertensive individuals as well as the effect of therapy on hypertensive individuals.

MATERIAL AND METHOD

A total of 150 individuals were used for the study.100 hypertensive under therapy were used and 50 normotensive served as control. Serum lipid (Cholesterol (T -chol) , triglyceride (TG), Phospholipids (PL).High density lipoprotein(HDL-chol), Low density lipoprotein(LDL- chol) and very low density lipoprotein (VLD L- chol) were biochemical parameters monitored. The normotensive had mean age of 50 ± 11 years and blood pressure of 117 ± 6 / 77± 6 mmHg. The hypertensive had mean age of 55 ± 10 years and blood pressure of 177±25 /103 ± 10 mmHg.Subjects selected were those attending Medical out patient clinic (MOP).University of Nigeria teaching hospital (UNTH) Enugu.subjects fasted for atleast 12 hours before samples were collected.About 5ml of blood was collected from the ante cubital vein by veno-puncture.The blood was transferred into a clean plain tube, allowed to clott ,centrifuged and serum separated for biochemical analysis of serum lipids,lipoproteins and phospholipids.Zlatkis and Boyle (1953) method was used to determine the total cholesterol content. Burnsterin et al (1970) for high density lipoprotein cholestrol.while the method of Stewart (1980) was used for phospolipid estimation and very low density was estimated using the method of Friedwald et al (1972). Statistical analysis was done using the student's t test. Obi (1986).

RESULT AND DISCUSSION

T able 1 Demographic data on Healthy normotensive and Hypertensive patients under 'treatment.

Parameters	Systolic blood Pressure (mmHg)	Diastolic blood Pressure(mmHg)	Age (years)
Normotensive	117.5+6.0	77.0+6.0	56.0 +11.0
Hypertensive	170+ 25.0	103.0+10.0	55.0+10.0

*Significant difference <0.05

T able 2 Biochemical Parameters of Healthy normotensive and Hypertensive patients under treatment.

Parameters	Normotensive	Hypertensive
Total Cholesterol (mg/dl)	156.0 11.0	166+13.0
Triglyceride (mg/dl)	59.0 4.0	66.0 7.0
Pl (mg/dl)	156.0+8.0	165.0+11.0
LDL-C (MG/DL)	81.0+15.0	95.0 +17.0
HDL-C (mg/dl	64.9+13.0	570.10.0
VLDL-C (mg/dl)	12.0 1.0	13.0 2.0

*Significant difference P <0.05.

The normotensive had mean age of 56 ± 11 years and blood pressure of 117 ± 6 / 77± 6 mmHg. The hypertensive had mean age of 55 ± 10 years and blood pressure of 177±25 /103 ± 10 mmHgTable1 .

The result revealed that there was a highly significant effect of age on total cholesterol of hypertensive than normotensive individuals .The mean total cholesterol (T -chol) and triglyceride (TG) were (156±11, and 59 ± 4) mg/dl respectively for the normotensives; and hypertensive the means were 166 ± 13.0 for the T – chol and 66± 7 mg/dl for triglyceride (P<0.05) Table11.

Similarly, a significant lower phospholipids level of 156±8 mg /dl was obtained for normotensives, hypertensives had a mean 165± 11 mg/dl (P<0.05). However, HDL-chol was lower in hypertensives (57± 10) mg/dl than in normotensives (64± 13) mg/dl.).

Hypertensive patients also recorded higher mean values of LDL-chol (95± 17) mg/dl than the normotensives with mean values of 81± 15 mg/dl for LDL- chol.

Marginally higher level of VLD L- chol was observed in hypertensive patients compared to normotensive individuals VLD L- chol(13± 2)mg/dl and 12 ± 1.0 mg/dl for VLD L- chol(P<0.05).

The cholesterol level of hypertensive was lowered when compared with195±30.0 mg/dl (upper limit) which Oforofuo (1991) recorded for his untreated hypertensive patients.The diference observed may be as a result of the biochemical effects of the drugs our patients were placed on.A close conformity was observed when the cholesterol level of our control group was compared with that of other Nigeria subjects studied by Oforofuo (1991).

The significant higher level of triglyceride observed in the study for the hypertensive may be due to increased endogenous synthesis in the liver.Although, Thomas (1977) and Johnson (1971) noted that there

was evidence of an effect of raised blood pressure on triglyceride concentration which is independent of obesity.

Also the phospholipids were significantly elevated ($P<0.05$).Conversely, the increase observed may be attributed to the effect of drugs, since these patients were on therapy.

The slight decrease in the value of HDL-Chol in hypertensive is not surprising, since hypertension is a risk factor in the development of atherosclerosis and cardiovascular diseases (Johnson and Day, 1984).

The values recorded for the hypertensive in LDL-Chol and VLDL-Chol may be consequential to the biochemical metabolic effects of some hypertensive therapy on plasma lipid levels of which thiazide has been implicated (Johnson, 1982).

Blood pressure was observed to increase with age.It could be due to the fact already noted that the structures of arteries and arterioles of all sizes change progressively with advancing age resulting in an increased rigidity and stretching of the walls,both in diameter and lenghth,features characterizing the age-related increase in systolic and pulse pressure in the study of Anderson(1991).

The results of this study tend to suggest that blood pressure increases with advancing age.Since; hypertension has been implicated as a risk factor in the development of hyperlipidaemia. It is important that proper management and constant checks should be strongly stressed.

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