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LIFESTYLE AND HYPERTENSION

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ABST RACT

Hypertension (HTN) is fast emerging as a modern epidemic in the world. It is the leading and most important modifiable risk factor for heart diseases, stroke, renal diseases and retinopathy. As raising BP is a symptom and not a disease hence its treatment relies basically on prevention of disease. Applying required lifestyle medications like reducing weight if overweight, following DASH (Dietary Approaches to Stop Hypertension) diet regimen, stress management, stop consuming tobacco and smoking, decrease the alcohol intake and increasing physical activity. Hence further researches in the field will be very helpful to create awareness among patients so as to prevent the further complications.

Keywor ds : Hypertension; Overweight; DASH; Stress; Alcohol; Physical Activity

INTRODUC TI ON

Hypertension (HTN) is the most common cardiovascular disorder posing a major public health challenge to societies in socio economic and epidemiological transition. Developed countries are considering it as a leading cause of death but even developing countries do not lag behind in being affected by it. Lack of knowledge about the morbidity, complications and the method of control of hypertension contributes to a large percentage of undetected and untreated hypertensive subjects in the community. High blood pressure is often called the "Silent Killer". In early stages of high blood pressure, there are no symptoms. Many who are afflicted feel no discomfort until a medical crisis like a heart attack, the rupture of a blood vessel in the brain or a stroke strikes. It is likely to reduce the life span by 10-20 years (Kulkarni 1998).

Once hypertension is diagnosed, treatment involves a combination of antihypertensive medication and life style modification which is the first line of intervention for all patients with hypertension (Lemone and Burke 2008). Lifestyle modifications that effectively lower blood pressure (BP) include weight loss, reduced sodium intake, increased physical activity. In addition, a diet rich in fruit, vegetables, and low-fat dairy products reduced in total and saturated fat, has also proved to lower BP (Onwukwe and Omole 2012).

Age

The proportion of hypertension steadily increases with age, being highest in 40-55 years group. The onset of hypertension was maximum in the age group of above 46 years. With aging the arteries become less elastic, leading to increase in blood

pressure as revealed by (Kumari et al 2008) .Similarly, Guddad et al (2012) concluded that the onset of hypertension was higher in subjects above 46 years of age and half the subjects had no family history of hypertension. The Framingham study by (Stanley et al 1997)on normotensive and untreated hypertensive, showed a linear rise in systolic blood pressure (SBP) of subjects from age 30 through 84 years and a concurrent early increase in diastolic blood pressure (DBP); after age 50 to 60 years, DBP declined, pulse pressure (PP) rose steeply, and mean arterial pressure (MAP) reached an asymptote.

Obesity

In developing countries undergoing health or epidemiological transition, a complex picture relating to nutritional status of the population is frequently found. In these communiti es, a malnutrition pattern is predominantly characterized by under nutrition in children, whereas in adults, ever-increasing obesity is found. In 1997, the World Health Organization emphasized that obesity is becoming a major health problem in many developing countries, particularly in adult women (Opie and Seedat 2005). Stevens et al (2001) designed a multicenter randomised clinical trial. men and women of 30 to 54 years, non medicat ed for BP of 140 / 83 to 89 mm Hg having Ideal Body Weight (IBW) 110% and 165%, were selected from Trials of Hypertension Prevention (TOHP) and were assigned to two groups - weight loss (n= 595) and usual care control (n= 596). Three years follow up of group meetings and individual counselling was done. The results shown were, Mean weight change from baseline in the intervention group was -4.4 kg at 6 months ,-2 kg at 18 months, - 0.2 kg at 36 months . Mean weight change in the control group at the same points was 0.1, 0.7 and 1.8 kg. Blood pressure was significantly lower in the intervention group than in the control group at 6, 18 and 36 month . It was concluded that clinically significant long term reductions in blood pressure and reduced risk for hypertension can be achieved with even modest weight loss.

Stress

In a study by Matthews et al (2007) on 4100 normotensive black and white men and women of age 18 to 30 years, with a follow-up period of 13 years. BP responses to 3 psychological challenges cold pressor, star tracing, and video game taskswere measured. It was observed that the larger the BP responses were to each of the 3 tasks, the earlier hypertension occurred. The systolic BP effect for the cold pressor task was apparent for women and for whites in race- and gender-specific models, whereas the diastolic BP effect for the video game was apparent for men. Young adults who show a large BP response to psychological stress may be at risk for hypertension as they approach midlife.

Physical Act ivit y

An increased level of physical acti vity can lower BP, independent of concomitant changes in weight. A recent meta-analysis of 27 randomized trials documented a 4 mmHg net reduction in systolic BP among individuals assigned to an aerobic exercise intervention (Kaplan et al 1997). A study was done by Hu et al (2004) on 8302 men and 9139 women of age group 25 to 64 years, with a followup of 11 years, having no history of antihypertensive drug use, coronary heart disease,stroke, and heart failure at baseline (1600 incident cases of drug-treated hypertension). Both single and joint associations of physical acti vity and body mass index with the risk of hypertension were examined using

Cox proportional hazard models. Multivariate-adjusted hazards ratios of hypertension associated with light, moderate, and high physical activity were 1.00, 0.63, and 0.59 in men ($P < 0.001$), and 1.00, 0.82, and 0.71 in women ($P = 0.005$), respectively. It was concluded that regular physical activity and weight control could reduce the risk of hypertension and there was equal protective effect of physical activity in both sexes regardless of the level of obesity.

Diet ar y Pattern

Payab et al (2015) conducted a nationwide study in 2011-2012 on 14,880 students, aged 6-18 years, selected by cluster sampling from 30 provinces. Weight, Height, Waist Circumference, Hip circumference, Waist hip ratio, Weight Height Ratio, as well as Systolic Blood Pressure and Diastolic Blood Pressure were measured. Junk food was divided into four categories, including salty snacks, sweets, sweetened beverages, and fast food. Subjects reported how many times they had consumed each item (daily, weekly, and seldom). The study revealed that the intake of sweets was significantly associated with anthropometric indices and BP levels. Significant association was found between fast food consumption, BP levels, and anthropometric indices (except for Weight Height Ratio and Waist Hip Ratio). Sweet beverages consumption was significantly associated with anthropometric indices; however, the consumption of salty snacks was only significantly associated with Height, Hip Circumference and Waist Hip Ratio. Hence, it was concluded that junk food consumption increased the risk of both general and abdominal obesity. Study done by Guddad et al (2012) on 100 hypertensive subjects of more than 46 years of age revealed that more number of i.e. 78 subjects were consuming vegetarian diet (78%) and relatively low proportion i.e. 22 subjects were non-vegetarians (22%). Rouse et al (1983) have reported that blood pressure of vegetarians was lower than that of non vegetarians.

Salt and Sodium

Epidemiologic, clinical and experimental studies suggest that ingestion of a diet habitual ly high in salt plays a role in the aetiology and pathogenesis of hypertension. Sodium chloride is the most abundant naturally occurring salt in food. However, the largest quantities of salt now consumed originate from industry processed food. Only 20% to 30% of total dietary sodium consumption is discretionary- or consumer controlled-through the addition of salt to food after its preparation. The rest is derived from naturally occurring sources or commercial processes (Egan et al 2003). Radhika et al (2007) concluded that intake of dietary salt in urban South India was higher than currently recommended. Increasing salt intake was associated with increased risk for hypertension even after adjusting for potential confounders. Alcohol Studies show higher rate of hypertension prevalence among alcoholics. Excessive alcohol intakemay lead to weight gain, elevation of blood lipids and peripheral neuropathy. Studies and clinical trials have also documented a direct, dose-dependent relationship between alcohol intake and BP, particularly when the intake of alcohol increases above 2 drinks per day. An increased prevalence of hypertension in groups with high alcohol consumption has been recognized for a number of years. In two studies, one from the United States and one from Australia, the maximum contribution to the prevalence of hypertension of alcohol consumption greater than two drinks per day was estimated to be 5%

to 7%; the contribution in men (11%) was greater than that in women because of their greater alcohol consumption (MacMahon et al 1984). However, the evidence is conflicting as to whether the blood pressure of persons consuming small amounts of alcohol (1-2 drinks per day) is greater, less, or no different than that of non- drinkers.

The role of catecholamines in mediating the acute effects on blood pressure of alcohol administration has been investigated in a study by Ireland et al (1984). It was observed that there was acute increase in blood pressure and plasma epinephrine immediately following alcohol ingestion in normotensive men. These authors have suggested that repeated acti vation of this adrenergic system may produce a slow pressor effect involving small increments in plasma epinephrine and result in chronic increases in blood pressure. The observations from this study suggested that a detailed history of alcohol consumption should be obtained from patients with hypertension, particularly in men, in whom heavy alcohol consumption is more frequent. Such patients should be encouraged to reduce their alcohol consumption and be referred for treatment of alcohol dependence when appropriate.

L ife style Modifications

Lifestyle modification is considered the current challenge to control blood pressure. Wehedy et al (2014) analysed that modifications in all dimensions of lifestyle patterns showed significant improvement in the study group compared with the control group. The improvement in the control group may be justified by obtaining information about healthy diet from their health care providers or from the mass media such as magazines, television, and newspapers. Lifestyle modifications included eating healthy diet, physical acti vity as walking and proper stress management. The knowledge acquisition during the sessions played an essential role in motivating the older adults in adopting healthy lifestyle. Similar findings were reported by Soliman (2007) and Weheida et al (2009) in Egypt, who found marked improvement in adopting healthy behaviours after implementing educational program among studied hypertensive patients. Viera et al (2010)found a significant mean weight reduction and an increase in physical acti vity among males and females who participated in a 15-month lifestyle intervention compared to the control group.It is possible to prevent the development of hypertension and to lower blood pressure levels by simply adopting a healthy lifestyle (Midgley et al 1996) The frustrations of advocating lifestyle changes are obvi ous to healthcare providers in clinical practice. Community resources are rarely available or convenient, counseling takes considerable time, and many patients do not adhere to treatment. Even with extensive publ icity regarding the importance of blood pressure control and the benefits of drug therapy, only 16% of people with hypertension in Canada had the condition under control (Campbell et al 1999). Physicians and other health care professionals could also be strong advocates for community resources to assist patients with lifestyle changes.

Dash Diet

According to a study by Folsom et al (2007) on 20,993 women of age group 55 to 69 years, revealed that no woman had perfect concordance with the DASH diet. Adjusted for age and energy intake, incidence of hypertension was inversely associated with the degree of concordance with the DASH diet, with

hazard ratios across quintiles of 1.0, 0.91, 0.95, 0.99, and 0.87 (p = 0.02). It suggested that greater concordance with DASH guidelines did not have an independent long-term association with hypertension or cardiovascular mortality in this cohort. This implies that very high concordance, as achieved in the DASH trials, may be necessary to achieve any benefits of the DASH diet.

CONCLUSION

From the cited literature, it can be concluded that hypertension is one of the most common and prevalent health problem throughout the world. It is a lifestyle related disorder, thus its major treatment is also lifestyle modifications like stress management, weight reduction, following Healthy dietary pattern, stopping the use of alcohol.

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