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Hypertension as a social health challenge in the UK: A Review of its prevalence, causes and the way out.

Introduction

The global scourge of harmful lifestyles, urbanization, industrialization, increased life expectancy has led to increase of chronic diseases as a public health challenge. In the present time, non-communicable diseases (including Hypertension) cover two-third of the world's total death. According to the World Health Organization (WHO) Eighty percent 80% of these deaths occur in poor or middle-income countries (WHO, 2019). The prevention and management of chronic non-communicable diseases are one of the major health problems in most countries of the world. With the gradual progression of chronic diseases, their adverse effects increase on the daily lives of patients. In the past, the effects of chronic diseases on the patient, family, and society were neglected, but today, they attract a great deal of attention.

One of the most common chronic diseases is Hypertension. Hypertension (high blood pressure) is a cardiac chronic medical condition in which the systemic arterial blood pressure is elevated. According to the World Health Organization (WHO), Hypertension refers to "systolic blood pressure equal or greater than 140 mm Hg and diastolic blood pressure equal or more than 90 mm Hg". Risk factors associated with developing hypertension are advanced age, family history, in addition to modifiable factors such as increased salt intake, increased alcohol intake, lack of physical activity, obesity and overweight. Hypertension is classified as either primary (essential) hypertension or secondary hypertension. Primary hypertension means high blood pressure with no obvious medical causes while secondary hypertension is caused by other conditions that affect the kidneys, arteries or endocrine system.

Hypertension is increasing rapidly in both developed and developing countries. It is estimated that hypertension accounts for more than 9.4 million deaths per year (WHO, 2018). Complications related to hypertension are irreversible and hypertension itself is one of the main causes of an increased burden on healthcare systems. Hypertension is one of the main causes of mortality and neurological long-term disability worldwide. In 2017, over 4.7 million patients died of the Hypertension in developed countries. It is predicted that the number of mortality will grow by 20.5 percent by 2030 (Van, Klungel, Wang and Horowitz, 2018).

Hypertension has several sub-classifications, including hypertension stage I, hypertension stage II and isolated hypertension (National Health Service, U.K.). Hypertension stage I occurs when an individual has blood pressure reading of (140/90 -159/99mmHg). Hypertension stage II is when an individual has blood pressure reading of 160 and above over 100 and above (that is, over 160/100mmHg). Isolated systolic hypertension (or isolated hypertension) refers to the elevated systolic pressure with normal diastolic pressure and is common in the elderly. Hypertension is also classified as resistant if medications do not reduce blood pressure to normal level. There is also Exercise hypertension which is an excessively high elevation in blood pressure during exercise and may indicate that an individual is at risk for developing hypertension. Finally, a systolic or diastolic blood pressure higher than the accepted normal values for the individual's age is classified as prehypertension (Delacroix, Chokka, and Worthley, 2014).

Hypertension is so common even though it is a non-communicable disease. It has led to so many sudden deaths, usually due to heart attack and to stroke. A lot of people with hypertension find it difficult to stick to their prescribed treatment for various reasons, including cost of drugs, the burden of having to take two or more drugs daily, having to abstain from certain food items they relish, and the-likes. Some people also go for herbal cures or they claim to use their faith and thereby stop taking their medications. All these boil down to a negative attitude and thought pattern and has severe consequences. Such severe consequences include disability, a poor quality of life, fatal heart attack. It also leads to damage to the arteries, called arteriosclerosis, angina, that is, chest pain, kidney failure, blocked arteries in legs or arms (peripheral artery disease), as well as damage to the heart, eye, and brain-(Transient Ischemic Attack TIA) called main stroke.

The disease (hypertension) is associated with the alterations in the blood vessels wall that affects the endothelium, the media and the adventitia, whereas alteration in the media leading to remodeling of the vessel wall. Patients with hypertension die prematurely with the most common cause of death are heart disease, while strokes and renal failure are frequently occurring, particularly in those with significant retinopathy. Various antihypertensive drugs such as beta-blocking agents, hypotensive diuretics, calcium antagonist, angiotensin converting enzyme inhibitors (ACEI), angiotensin II receptor antagonists and alpha-receptor blocking agents were usually used to control hypertension and its alleviate symptoms clinically. Two or more 7 antihypertensive drugs from different categories usually were combined to achieve optimal results as the efficacy of these drugs is only about 40-60%.

Essential hypertension 95% of all hypertension cases were categorized as essential hypertension that also known as primary hypertension or idiopathic hypertension (Carretero et al., 2000). It is a heterogeneous disorder as different patients have different factors that cause high blood pressure. The cause of essential hypertension is still unknown but it is considered as the sum of interaction between genetic and multiple environmental factors (Büssemaker et al., 2010). Environmental factors including obesity, high alcohol intake, high salt intake, insulin resistance, low potassium intake, aging, sedentary lifestyles, stress, and low calcium intake contribute to the development of hypertension (Carretero et al., 2000). Inherited blood pressure (Bp) known as blood pressure that are genetically determined, while hypertensinogenic factors are factors that cause high blood pressure such as obesity, high alcohol and salt intake (Carretero et al., 2000).

Primary (essential) hypertension Primary hypertension is the most prevalent type, affecting between 90-95 percent of patients diagnosed with hypertension. Primary hypertension does not have a clearly identifiable known etiology. This differentiates primary from secondary hypertension, in which blood pressure elevation occurs secondarily to another identifiable cause. Although primary hypertension is unidentifiable cause, however, the risk factors of primary hypertension have been found in the literatures. Many studies have indicated several risk factors of primary hypertension, such as age, body mass index (BMI), smoking and alcohol consumption.

Secondary hypertension can be caused by medical conditions such as renal parenchymal disease, renal artery stenosis, hyperaldosteronism, or pheochromocytoma. Temporary high blood pressure also can cause by medications such as corticosteroids, nonsteroidal anti-inflammatory drugs (NSAIDs), cold medicines and birth control pills. Corticosteroids such as prednisone and prednisolone will lead to Cushing syndrome in long-term use. Usage of nonsteroidal anti-inflammatory drugs (NSAIDs) increases blood pressure as well as interfere in anti-hypertensive treatment, and abolish its effect (Grossman et al., 2012). Treatment for primary and secondary hypertension were specifically different thus, it is important in terms of its diagnostic, therapeutic and prognostic to be determined before patient with such conditions were treated.

The remaining 5-10 percent of hypertension cases is classified as secondary hypertension. Secondary hypertension results from the identifiable cause. The cause may be a specific pathophysiology or condition that result in hypertension, or the development of high BP may be the result of the ingestion or certain drugs, food or chemical. Stages of hypertension According to Gibson (2003), BP has classified into three stages including: normal, prehypertension, and hypertension. Normal: Systolic BP less than 120 mmHg or diastolic BP ≤

80 mmHg. Pre-hypertension: Systolic BP is from 120 to 139 mmHg or diastolic BP is from 80 to 89 mmHg. Hypertension: this stage is classified into 2 categories as follows: 14 Stage 1 hypertension: Systolic BP is from 140 to 159 mmHg or diastolic BP is from 90 to 99 mmHg. Stage 2 hypertension: Systolic BP is ≥ 160 mmHg or diastolic BP is ≥ 100 mmHg. It is important to note that, Gibson has introduced a term "Prehypertension". This term is used to classify people who have systolic BP ranging in about 120-139 mmHg and/ or diastolic BP ranging in about 80-89 mmHg. The goal of new classification is intended to identify people who have high risk to be hypertension. The identification of prehypertension will help healthcare providers to give early intervention by using healthy lifestyle.

Pathophysiology mechanisms of hypertension are focused on primary hypertension. The mechanisms are as follows: Genetic factor; each person's variance in BP is under an important degree of genetic control, but quantitative estimates range from 35% to 70%. About 50% of patients with hypertension have a family history of high BP or premature death from cardiac problems in first degree relatives. People with normal BP but a strong family history of hypertension are at a greater risk than those with no such history. The precise identification of "genes that cause hypertension" has not been clear, however, because of the multifactorial nature of the disease and the presence of many major pathogenetic pathways.

Indeed, major genes that definitely cause primary hypertension have yet to be discovered, although more than 20 published genome wide screens are available for genes that control BP. Some autosomal dominant genetically inherited forms of hypertension exist, but they are very rare (Beevers, Lip, & O'Brien, 2007); Balance between cardiac output and peripheral resistance Blood pressure is normally dependent on the balance between cardiac output and peripheral resistance. Cardiac output is the volume of blood flowing through either the systemic or pulmonary circuit per minute. Cardiac output of the heart can be changed by alteration in heart rate, stroke volume (Volume of blood ejected during each ventricular contraction) or both. An increase in cardiac output without a decrease in peripheral resistance will cause both arterial volume and arterial pressure to increase (Huether & McCance, 2012). Total peripheral resistance is determined by changes in the diameter of the arterioles. Arteriolar constriction increase mean arterial pressure by preventing the free flow blood into the capillaries. Dilation has the opposite effect (Huether & McCance, 2012).

Aim/Objectives

The primary aim/objective of this study is to evaluate the prevalence of hypertension in the UK and also identify the features and characteristics of different individuals that are at the greatest risk of becoming hypertensive.

Background

Most people with high blood pressure have no signs or symptoms even if blood pressure readings reach dangerously high levels. In fact, one can have hypertension for years without any symptoms, until high blood pressure has reached a severe even life-threatening stage. Such symptoms as headaches, dizzy spells, a lot of nose bleeding, sound in the ears, vision disorders, drowsiness, confusion, nausea and vomiting, have, however, been associated with hypertension. Some additional signs and symptoms suggest that the hypertension is caused by disorders in hormone regulation, such as hyperthyroidism, hypothyroidism and growth hormone excess. For example, hypertension combined with obesity distributed on the back of the neck (Buffalo hump), plus abdominal striae (stretch marks on the stomach area) or the recent onset of diabetes suggest that an individual has Cushing's syndrome.

The theme of the World Health Day 2019 is "Measure your Blood pressure, reduce your risk" for calling for intensified efforts to prevent and control Hypertension. WHO (2017) estimated that one in three adults worldwide are affected with raised blood pressure, a condition that causes around half of all deaths from stroke and heart disease. This report is further evidence of the dramatic increase in the conditions that trigger heart disease and other chronic illnesses, particularly in low- and middle-income countries. WHO (2011) studied the prevalence of Hypertension in India. The prevalence of Hypertension was found among 33.2% males and 31.7% females and totally 32.5%. It also states that 9.9% males and 12.2% females and totally 11% are in overweight category. Moreover, regarding Raised cholesterol 25.8% males, 28.3% females and 27.1% total population. Dutta A and Ray MR studied the prevalence of hypertension, prehypertension and tachycardia among the women in rural areas of West Bengal, identify co-factors associated with the prevalence and contribute to the body of evidence for future health programs to identify at-risk groups.

A population based cross-sectional study was conducted among 1186 remote women participants, aged 18 years or more. They were interviewed using standard structured questionnaire. For each participant, two blood pressure measurements with an interval of 48 hours. Overall prevalence of hypertension in the study subjects was 24.7% and that of pre-

hypertension and tachycardia was 40.8% and 6.4%, respectively. Both hypertension and pre-hypertension were seen to increase with age. Other identified significant factors were use of biomass fuel for cooking, absence of separate kitchen, higher body mass index (BMI), education and average family income. Biswas and Manna (2013) conducted a cross-sectional, community-based survey to investigate the prevalence of hypertension among the members of the households of the Scheduled Caste community of three selected villages in District Nadia, West Bengal, India, in individuals aged 20-70 years. Prevalence of prehypertension, hypertension, ISH and IDH in the study population was 19.28%, 17.93%, 8.07% and 6.72%, respectively. There was a significant development of hypertension with increasing age.

Rationale of the research

Medical practitioners have reported that despite all efforts in educating patients on why they should adhere strictly to their treatment (in some cases, drugs had even been given free of charge); patients still did not adhere to treatment. In view of the above, the researcher sees the need to explore the prevalence various causes and possible solutions to the problem of hypertension.

Further, the enormous impact of morbidity and untimely mortality caused by hypertension on the developmental life span of individuals and socio-economic development of the society cannot be overstated. Hypertension is one of the most crucial health problems and the most common chronic disease in developed and undeveloped countries. It is called the “silent killer” which is usually diagnosed accidentally. Hypertension control among adults according to the World Health Organization ranges between 25.4% and 39%, with non-compliance being the greatest of the factors responsible for its poor control. Hypertension can cause headache, fatigue, blurred vision, nose bleeding and facial paralysis in children. Persistent hypertension is one of the risk factors for stroke, myocardial infarction (heart attack), heart failure and and is a leading cause of chronic kidney failure. Moderate elevation of arterial blood pressure leads to shortened life expectancy.

Methods

The study adopts a mixed research design which will include both qualitative In-Depth Interviews (IDIs) and quantitative (survey) methods. The IDI will be made up of four questions and will be

conducted among the hypertensive patients. The in-depth interview also enables the researcher to get the varied views. This helps the researcher to find out their various experiences.

Data analysis

Simple percentage and Analysis of Covariance (ANCOVA) will be the major statistical tools employed in the study. The demographic characteristics of the respondents were analysed with simple percentage.

Results

We used data from people aged 40–79 years who participated in 123 national health examination surveys from 1976 to 2017 in 12 high-income countries: Australia, Canada, Finland, Germany, Ireland, Italy, Japan, New Zealand, South Korea, Spain, the UK, and the USA. We calculated the proportion of participants with hypertension, which was defined as systolic blood pressure of 140 mm Hg or more, or diastolic blood pressure of 90 mm Hg or more, or being on pharmacological treatment for hypertension, who were aware of their condition, who were treated, and whose hypertension was controlled (ie, lower than 140/90 mm Hg). Data from 526 336 participants were used in these analyses. In their most recent surveys, Canada, South Korea, Australia, and the UK had the lowest prevalence of hypertension, and Finland the highest. In the 1980s and early 1990s, treatment rates were at most 40% and control rates were less than 25% in most countries and age and sex groups. Over the time period assessed, hypertension awareness and treatment increased and control rate improved in all 12 countries, with South Korea and Germany experiencing the largest improvements. Most of the observed increase occurred in the 1990s and early-mid 2000s, having plateaued since in most countries. In their most recent surveys, Canada, Germany, South Korea, and the USA had the highest rates of awareness, treatment, and control, whereas Finland, Ireland, Japan, and Spain had the lowest. Even in the best performing countries, treatment coverage was at most 80% and control rates were less than 70%.

Discussion

In line with the findings of Beevers et al., (2017), it is dangerous to ignore high BP, because this increases the chances of life threatening complications. The higher the BP is the higher the likelihood of harmful consequences to the heart and blood vessels in major organs such as the heart, brain, kidney, and eyes. This is known as cardiovascular risk, and can also be high in

people with mild hypertension in combination with other risk factors e.g., tobacco use, physical inactivity, unhealthy diet, obesity, diabetes, high cholesterol, low socioeconomic status and family history of hypertension (WHO, 2018).

Various types of gene might involve in the development of hypertension and can cause inherited blood pressure and the influences of these genes have been demonstrated by family studies that showed high blood pressure are associated among siblings and between parents and children (Carretero, John and Friday, 2000). Obesity is known as important risk factor for type 2 diabetes and cardiovascular disease (CVD). It is associated with an incidence of arterial hypertension and known to be one of powerful risk factors for non-communicable diseases (Florencio et al., 2004). Obesity also acknowledge as the main hypertensinogenic factor compared to high alcohol intake, high salt intake, stress, sedentary lifestyles, dyslipidemia, low potassium and low 8 calcium intake (Carretero et al., 2000). According to the study in Shanghai on Chinese adults age 40 years and above, subject with obesity are significantly has higher risk of hypertension and type 2 diabetes (He et al., 2009). Obesity can cause insulin resistance, adult-onset diabetes mellitus, left ventricular hypertrophy, hyperlipidemia and atherosclerotic disease (Carretero et al., 2000). However, the mechanism of obesity that raises blood pressure (Bp) is not fully understood (Carretero et al., 2000).

Recommendation

Based on the findings of this study, the following recommendations were made. First, this study showed that the prevalence of cancer in the society is now vey high and therefore treatments plans for hypertensive patients should incorporate health education.

There is also the need to restructure the hospital settings to be more patient friendly, such that different points of service such as pay points, laboratories and treatment centres can be made easily accessible to all patients, some of whom may have mobility issues, so that they won't have to go too far from one place to the other.

This study has also exposed a need for the recruitment and training of more medical staff, especially in the area of patient and family communication and support. Measures should also be put in place to prevent burn out and encourage the medical staff to be more friendly and empathetic to patients and their caregivers.

Limitations of the Study

There were some limitations that have to be considered in interpreting and generalizing the findings of this study. First, only few researches by the authors were considered.

Conclusion

From the outcome of this study, it has been reported that 25% adult and 37% of the elderly are hypertensive according to (WHO, 2019) report. This implies that the productive manpower of is in great danger. Despite the known effect of Hypertension to human health and society, the present trend in the UK is shown to have taken a dangerous dimension with prevalence rate showing over 35% of the youths being hypertensive. It is therefore concluded that changes in lifestyle, besides medication treatment is crucial factor to a better prognosis. For example, healthy eating, increased physical activity, and weight management can decrease the prevalence and progress of the mentioned diseases.

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