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Literature Review

Risk of Hypertension in the Elderly: Systematic Literature Review

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Abstract

This review is aiming to discuss the risk of hypertension in the elderly, the presented review was conducted by searching in Medline, Embase, Web of Science, Science Direct, BMJ journal and Google Scholar for, researches, review articles and reports, published over the past years. Were searched up to November 2018 for published and unpublished studies and without language restrictions, if several studies had similar findings, we randomly selected one or two to avoid repetitive results. On the basis of findings and results this review found sex, age, and diastolic blood pressure, atrial fibrillation (AF) systolic blood pressure, coronary events, elderly age group, dyslipidemia, obesity and family history of DM, dyslipidemia, hyperglycemia and Migraine.

Keywords: *Blood Pressure; Risk; Hypertension; Elderly*

Introduction

The incidence rate of elevation in blood pressure rise scurvy linearly with age, averaging 8% in sexagenarians and exceeding 25% beyond 80 years [1]. Isolated systolic hypertension is a distinct pathophysiological entity, in which the rise in systolic blood pressure is mainly due to a decreased elasticity of the large arteries and is not necessarily accompanied by elevation in arterial blood pressure or in peripheral resistance. In the elderly there are preventable cardiovascular risk factors, systolic hypertension is of major importance [1].

The study proved that the incidence of atrial fibrillation (AF) in elderly is 2.2 million elderly people in US and 4.5 million elderly people in Europe and it both permanent or intermittent AF [2,3]. The incidence rate of AF in the general population is 0.4% - 1% for those with an average age of 75 and the incidence increases in elderly above 80 years of age [3]. Additionally, in the past two decades, the elevation in the number of elderly people has led to a 66% raise in hospital entrance due to AF [4,5].

HTN affects about one billion people worldwide, and it is estimated that by 2025, up to 1.56 billion adults worldwide will be hypertensive. Globally, one of the important reasons for mortality and morbidity is hypertension, accounting for 7% of disability adjusted life years and 9.4 million deaths in 2010 [6-8].

Hypertension (HTN) is a dominant, but remediable, risk factor for cardiovascular disease (CVD) occurrence of diseases and death among the elderly. The high prevalence of HTN in this rapidly growing population, its negative sequelae, and cost make HTN control a central issue in health care. CVD risk increases with age and shows a better correlation with elevated systolic blood pressure (SBP) than with diastolic blood pressure (DBP) [9].

It is widely accepted that CVD is linked with HTN and increased blood levels of low-density lipoprotein (LDL), total cholesterol (TC), and triglycerides (TG). In contrast, a low height of high density lipoprotein (HDL) is a risk factor for mortality from CVD [10].

Materials and Methods

The present review was conducted November 2018 in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) declaration standards for systematic reviews. We reviewed all the topics on risk of hypertension in the elderly, such as sex, age and diastolic blood pressure, atrial fibrillation (AF)systolic blood pressure, coronary events, elderly age group, dyslipidemia, obesity and family history of DM, dyslipidemia, hyperglycemia and Migraine. To achieve this goal, we searched Medline, Embase, Web of Science, Science Direct, and Google Scholar for, researches, review articles and reports, published over the past 15 years.

Our search was completed without language restrictions. Then we extracted data on study year, study design, and key outcome on risk of hypertension in the elderly. The selected studies were summarized and unreproducible studies were excluded. Selected data is shown in the table 1.

Author and year	Sample	Risk	Key point
Staessen J 2000 [11]	15693 patients	Sex, age, and diastolic blood pressure, systolic blood pressure, coronary events.	The risks associated with systolic blood pressure in treated and untreated older patients with isolated systolic hypertension
Harsha V 2013 [12]	2,873 patients	Atrial fibrillation (AF)	Overlap syndrome in elderly patients increases the risk of developing AF more than OSA or COPD
Tripathy J 2017 [13]	5127 individuals	Elderly, dyslipidemia, obesity and family history of DM	The study proved that there is strong relationship between comorbid diabetes and hypertension and obesity and dyslipidemia. This emphasizes the role of nonpharmacological intervention such as weight reduction, physical activity, and dietary modification
Alwardat N 2018 [14]	200 participants	Dyslipidemia, hyperglycemia	Studies have found lifestyle change and medical management to be one of the most important methods of prevention of, hyperglycemia and, consequently, HTN medical management. In primary health care, regular follow-up of BP, lipid and glucose profiles is necessary.
Gilad R 2013 [15]	163 patients	Migraine	The findings of the present study might have an important clinical relevance, suggesting another pathophysiological process in respect to patients suffering from migraine with aura, and this evidence might have different therapeutic implications.

Inclusion criteria

Inclusion criteria were: risk, hypertension, elderly.

Exclusion criteria

Irrelevant articles not related to the aim of this review and articles that did not meet the inclusion criteria in this review.

Data extraction and analysis

Information relating to each of the systematic review question elements was extracted from the studies and collated in qualitative tables. Direct analysis of the studies of the management of acute postoperative pain.

Results

"In eight trials 15693 patients with isolated systolic hypertension were followed up for 3.8 years (median). After correction for regression dilution bias, sex, age, and diastolic blood pressure, the relative hazard rates associated with a 10 mm Hg higher initial systolic blood pressure were 1.26 ($p = 0.0001$) for total mortality, 1.22 ($p = 0.02$) for stroke, but only 1.07 ($p = 0.37$) for coronary events. Independent of systolic blood pressure, diastolic blood pressure was inversely correlated with total mortality, highlighting the role of pulse pressure as risk factor" [11].

"The disease occurs in a rate of 10% for those who suffer from COPD and by 6% OSA group and 21% in overlap syndrome group ($P < 0.05$). There is a relationship between overlap syndrome and the occurrence of AF (OR = 3.66, P = 0.007). After controlling for age, sex, HF, CKD and HTN. There is also a very large relationship between HF, CKD and HTN and occurrence of AF ($P < 0.05$)" [12].

In adult the incidence of DM and HTN was 4.5%. The incidence of DM, HTN and dyslipidemia is 1.8%. More disease associated with patient who suffer from DM and HTN are Obesity and dyslipidemia.

There are many factors closely related to the occurrence of the DM and HTN including: elderly age group, dyslipidemia, obesity and family history of DM [13].

When comparing hypertensive subjects with normotensives the study found increase in serum levels of TC, TG, LDL and FBS while HDL levels is decrease ($p < 0.01$) [14].

Discussion

Previous meta-analyses focused on the role of diastolic blood pressure as cardiovascular risk factor and studied the benefit of antihypertensive drug treatment relative to the achieved reduction in diastolic blood pressure [11].

The study proved that elderly patients with the overlap syndrome (OSA with concomitant COPD) are more likely to have the risk of new-onset AF than those with the OSA alone. Additionally, also the study proved that elderly patients with the overlap syndrome are more likely to have the risk of new-onset AF than those with the COPD alone [12].

The cardinal point of the study is: 1) in adult the incidence of comorbid DM and HTN was 4.5% 2) 1.8% resident coexisted with the DM, HTN and dyslipidemia 3) DM and HTN alone or co-existing are usually related with the Obesity and dyslipidemia 4) elderly age group, dyslipidemia, obesity and family history of DM are risk factors related to comorbid DM and HTN [13].

Our findings revealed that mean value of serums FBS, TC, TG and LDL were statistically significant higher among hypertensive patients compared to normotensives patients [14].

The results of the present study show a significantly lower percentage of vascular risk factors (HTN, DM and hyperlipidemia) in female migraine sufferers aged 50 years and older compared with the official published results of the Israel Ministry of Health [15].

Conclusion

The results of this studies show the risk of hypertension in elderly. On the basis of findings and results this review found. Sex, age, and diastolic blood pressure, atrial fibrillation (AF) systolic blood pressure, coronary events, elderly age group, dyslipidemia, obesity and family history of DM, dyslipidemia, hyperglycemia and Migraine is the most common risk of hypertension in the elderly.

Conflict of Interest

The authors of this article has not receive and support for this work and it was completely self-funded.

Bibliography

1. Staessen J., *et al*. "Isolated systolic hypertension in theelderly". *Journal of Hypertension* 8 (1990): 393-405.
2. Feinberg WM., *et al*. "Relationship between prothrombin activation fragment F1.2 and international normalized ratio in patients with atrial fibrillation. Stroke Prevention in Atrial Fibrillation Investigators". *Stroke* 28 (1997): 1101-1106.
3. Fuster V., *et al*. "2011 ACCF/AHA/HRS Focused Updates Incorporated into the ACC/AHA/ESC 2006 Guidelines for the Management of Patients with Atrial Fibrillation: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines". *Circulation* 57 (2011): e101-e198.
4. Friberg J., *et al*. "Rising rates of hospital admissions for atrial fibrillation". *Epidemiology* 14 (2003): 666-672.
5. Wattigney WA., *et al*. "Increasing trends in hospitalization for atrial fibrillation in the United States, 1985 through 1999: implications for primary prevention". *Circulation* 108 (2003): 711-716.
6. Chobanian A V., *et al*. "The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure". *The Journal of the American Medical Association* 289.19 (2003): 2560.
7. Kearney PM., *et al*. "Global burden of hypertension: analysis of worldwide data". *Lancet* 365.9455 (2005): 217-223.
8. Lim SS., *et al*. "A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010". *Lancet* 380.9859 (2012): 2224-2260.
9. Vokonas PS., *et al*. "Epidemiologyand risk of hypertension in the elderly: The Framing-ham Study". *Journal of Hypertension* 6.1 (1988): S3-S9.
10. Mora S., *et al*. "High-density lipoprotein cholesterol, size, particle number, and residual vascular risk after potent statin therapy". *Circulation* 128 (2013): 1189-1197.
11. Staessen JA., *et al*. "Risks of untreated and treated isolated systolic hypertension in the elderly: meta-analysis of outcome trials". *The Lancet* 355.9207 (2000): 865-872.
12. Harsha V., *et al*. "Risk of new-onset atrial fibrillation in elderly patients with the overlap syndrome: a retrospective cohort study 10.2 (2013): 129-134.
13. Tripathy JP., *et al*. "Prevalence and determinants of comorbid diabetes and hypertension: Evidence from non-communicable disease risk factor STEPS survey, India". *Diabetes and Metabolic Syndrome: Clinical Research and Reviews* 11 (2017): S459-S465.

14. Alwardat N., *et al*. "Association between hypertension and metabolic disorders among elderly patients in North Jordan". *Diabetes and Metabolic Syndrome: Clinical Research and Reviews* 12.5 (2018): 661-666.

15. Gilad R., *et al*. "Migraine and vascular risk factors in the elderly". *Geriatrics and Gerontology International* 14.1 (2013): 220-225.

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