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Case Report

Geriatric health care in rural setting: a community-based case report of an older adult with hypertension

Srishti Mishra*, Piyushkumar C. Parmar, Niraj B. Pandit, Sanjana Jadhav

Department of Community Medicine, Smt. BK Shah MIRC, Sumandeep Vidyapeeth Deemed to be University, Vadodara, Gujarat, India

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***Correspondence:**
Dr. Srishti Mishra,
E-mail: srshtm97@gmail.com

ABSTRACT

India's demographic transition is increasing the burden of chronic diseases, functional decline, and psychosocial problems among older adults. Hypertension remains a leading contributor to cardiovascular morbidity, while sarcopenic obesity is emerging as an important but under-recognized geriatric concern, particularly in rural areas. A 65-year-old man from a remote village with an eight-year history of hypertension on angiotensin receptor blockers presented with mild breathlessness, body ache, and intermittent headache. He was overweight with a calorie-rich, protein-poor diet, predisposing him to sarcopenic obesity. Long-term tobacco use was a major risk factor, while strong family support acted as a protective psychosocial determinant. Household overcrowding and poor ventilation were noted. The case highlights the need for a comprehensive geriatric approach integrating nutritional, psychosocial, environmental, and medical management to improve healthy ageing in rural elderly populations.

Keywords: Geriatric, Public health, Hypertension

INTRODUCTION

With a continually rising percentage of the population 60 years of age and above, geriatric health has become a key public health issue in India as a result of the ongoing demographic change. The burden of chronic non-communicable diseases (NCDs), functional restrictions, and psychosocial issues among the elderly has increased as a result of this change. Elderly people are more susceptible to disease, incapacity, and reliance since aging is a normal biological process linked to a slow reduction in physiological reserve. Therefore, rather than using a paradigm that is only disease-specific, geriatric health management necessitates a holistic, multidisciplinary, and community-based approach.[1] A significant risk factor for cardiovascular, cerebrovascular, and renal morbidity and mortality, hypertension is one of the most common chronic illnesses in the aged. Age-related physiological changes such as arterial stiffness and altered vascular compliance, when combined with long-standing hypertension, pose unique challenges in clinical management.[2] Sarcopenic obesity, a syndrome marked by the combination of increased fat mass with loss of muscle mass and strength, is a significant new issue in senior health. This disease is frequently observed in older persons who have low levels of physical activity and consume meals high in calories but low in protein. Recognizing sarcopenic obesity is crucial in geriatric assessment because it raises the risk of metabolic diseases, cardiovascular illness, functional dependency, and poor quality of life.[3] Nearly every organ system is impacted by aging. Arterial stiffening, decreased baroreceptor sensitivity, and an increase in systolic blood pressure are characteristics of cardiovascular aging that

contribute to the high incidence of isolated systolic hypertension in the elderly. Drug metabolism is changed and electrolyte imbalance is more likely as renal function declines. While sensory deficits including poorer vision and hearing impact independence and day-to-day functioning, musculoskeletal deterioration leads to decreased mobility and an increased risk of falls. Though not always present, cognitive and psychological changes can show up as memory loss, depression, or social disengagement, especially when there is a chronic illness or insufficient social support. Therefore, a biopsychosocial framework that integrates medical care with psychological well-being and social determinants of health is necessary to address geriatric health. Social assessment is particularly important in elderly individuals living in joint or extended families, where social support may be present but environmental risks such as overcrowding, poor ventilation, and inadequate lighting may affect health outcomes.[2] A multifaceted, interdisciplinary diagnostic procedure called Comprehensive Geriatric Assessment (CGA) is used to assess an aged person's medical issues, functional abilities, mental health, nutritional status, social support, and environmental factors. CGA is essential for determining cardiovascular risk, recognizing target organ damage, measuring dietary adequacy, identifying co-morbidities, and comprehending functional capacity in older individuals with hypertension. Additionally, it aids in creating customized treatment regimens, boosting treatment compliance, avoiding problems, and improving general quality of life. Because CGA connects clinical care with the social and the environmental dimensions of aging, it is very useful in community medicine.[4] Treatment with pharmaceuticals should be started at modest doses and gradually increased. Because of their favourable side-effect profile, Angiotensin receptor blockers (ARBs) are frequently chosen. Electrolyte levels, blood pressure, and renal function must all be regularly monitored. Individualized treatment of hypertension in older persons should weigh the advantages of blood pressure management against the dangers of negative medication side effects.[5,6]

Government Programs such as Ayushman Bharat, (NPHCE)National Programme for Health Care of the Elderly, (NPNCD)National Program for Non-Communicable Diseases and social security schemes plays a crucial role in ensuring proper access to healthcare services for the elderly.[7-9]

Table 1: Epidemiological risk–protective factor assessment of the case.

Domain	Classification	Identified factor	Significance
Risk factors	Non modifiable	Age/gender: elderly age (65 years)/male	Advancing age and gender “males” are at higher risk of cardiovascular diseases Already a known case of hypertension for 8 years
	Modifiable	BMI/diet: overweight (27.6kg/m2)/excess in calories, carbohydrates and deficit in protein	Already a known case of hypertension for 8 years. May cause insulin resistance, dyslipidaemia if risk factor persists It may lead to obesity, poor metabolic health in present diet habit
		Tobacco chewing for 40 years	Already a known case of hypertension for 8 years. Increases risk for cardiovascular diseases and other diseases like leucoplakia and cancers of mouth, oesophagus, stomach, pancreas.
		Housing environment: overcrowding, poor ventilation and poor lighting are present	Risk of communicable diseases such as TB and other respiratory infections increases, Due to overcrowding poor sleep pattern can happen. Increases risk of fall due to poor lighting
Protective factors		Good medicine adherence	Is a known case of hypertension since past 8 years, but has not developed any complications till now, shows good medicine adherence
		Psychosocial health/ family structure (joint family)	Lives happily with family hence there are no signs of loneliness or discomfort. His social group in neighbour provides support leading to good mental health and care access
		Health insurance/social security (Ayushman, ration, aadhaar)	Improves affordability and continuity of care

CASE REPORT

Mr. MNO is a 65-year-old Hindu male, resident of M village, belonging to a joint family of lower middle socioeconomic status (as per MBGP classification). He is a farmer by occupation. The family possesses Ayushman card, ration card, and Aadhaar cards, indicating utilization of available social security measures. He is a known case of hypertension for the past 8 years, currently on Angiotensin receptor blocker (ARBs), with fairly

controlled blood pressure (130/80 mmHg). His long duration of hypertension reflects the chronic nature of NCDs in the elderly and highlights the importance of sustained treatment adherence.

Despite presenting with mild, nonspecific symptoms such as breathlessness, generalized body ache, and intermittent headache, the absence of acute or alarming features emphasizes how hypertension in elderly individuals may remain clinically silent yet carry long-term risks. The patient has a BMI of 27.6 kg/m², categorizing him as mildly overweight as per (South East Asian) SEA BMI guidelines.[10] Dietary assessment reveals protein deficiency with excess caloric, carbohydrate, and fat intake, a pattern commonly observed in elderly rural populations. This nutritional imbalance directly correlates with increased cardiovascular risk and poor metabolic health.

A significant risk factor in this case is tobacco chewing for the past 40 years, which contributes to cardiovascular morbidity and reduces the effectiveness of antihypertensive management. However, positive psychosocial factors such as active participation in family discussions, absence of loneliness, and good social integration act as protective factors for mental health and overall well-being. The patient resides in a pucca house with sanitation facilities but faces challenges such as overcrowding, inadequate ventilation, poor lighting, and nearby garbage dumping. These environmental determinants highlight the role of living conditions in geriatric health and underline the importance of community-level interventions.

The current management strategy—continuation of antihypertensive therapy, dietary modification through (Dietary Approaches to Stop Hypertension) DASH diet, salt restriction, weight monitoring, and regular follow-up—is consistent with recommended geriatric hypertension management. Health education focusing on drug compliance, early recognition of complications, and tobacco cessation is essential. This case serves as an example of primary prevention through lifestyle adjustment, secondary prevention through routine blood pressure monitoring, and tertiary prevention through providing continuity of care and preventing impairment.

DISCUSSION

The case emphasizes important aspects of geriatric health in a rural Indian context, especially the rising prevalence of hypertension among the elderly as a chronic non-communicable disease. As demonstrated here, long-term hypertension frequently goes undiagnosed yet, if left untreated, greatly increases cardiovascular morbidity. In this instance, the reasonably managed blood pressure highlights the value of ongoing medication therapy and emphasizes how crucial treatment adherence is for senior citizens. The patient's overweight condition combined with a diet high in calories and low in protein puts them at risk for sarcopenic obesity, which is a significant finding in this case. Long-term cardiovascular outcomes, metabolic risk, and functional decline are all significantly impacted by this illness, which is becoming more widely acknowledged in older populations. Since BMI alone may underestimate the loss of muscle mass in older persons, it is crucial to identify such nutritional imbalances by thorough testing.[10]

In this instance, psychosocial characteristics were protective. Better mental health and medication compliance were probably influenced by being in a joint family with strong social integration, no loneliness, and active engagement in family activities.

On the other hand, chewing tobacco was found to be a significant modifiable risk factor that needed ongoing behavioral intervention. Overcrowding and poor ventilation are examples of environmental problems that emphasize the importance of social determinants of health in geriatric care. In order to promote healthy aging, this case highlights the necessity of a thorough geriatric evaluation and integrated community-based programs that address medical, nutritional, psychosocial, and environmental aspects.

CONCLUSION

The health profile of an old person with chronic hypertension living in a rural area is reflected in the case of Mr. MNO. It emphasizes the necessity of an all-encompassing geriatric strategy that incorporates social, environmental, dietary, and lifestyle interventions with clinical management. In order to promote healthy aging and enhance quality of life, effective geriatric health care, especially for hypertension, involves ongoing community-based interventions, family support, and easily available health services.

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