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Commentary

Addressing hypertension among tribal people of India

It was estimated that hypertension led to 1.63 million deaths and 33.9 million disability-adjusted life years (DALYs) in 2016 in India[1]. The leading risk factors for cardiovascular diseases (CVDs) were dietary risks and high systolic blood pressure, responsible for 56.4 and 54·6 per cent of CVD DALYs, respectively in 2016[2]. As a part of its Sustainable Development Goals, the Government of India is committed to one-third reduction in premature mortality due to non-communicable diseases by 2030, more than half of which is contributed by the CVDs. It is estimated that up to a third of cardiovascular deaths can be avoided by proper control of hypertension[3]. India has also committed to reduce the prevalence of hypertension to 25 per cent of the 2010 level by 2025 in its National Non-communicable Diseases Monitoring Framework[4].

The estimated prevalence of high systolic blood pressure for 2016 was 21.1 per cent. States with advanced epidemiological transition reported higher levels of hypertension than those that were less advanced[2]. Along with diversity in epidemiological transition, India is known for its ethnic, religious, linguistic, cultural and dietary diversity. A subset of the population that is least advanced in its epidemiological transition is the tribal population. While there are likely to be differences within the tribal populations of India, all of them are characterized by the preservation of their traditional culture including dietary habits and poor access to healthcare.

A meta-analysis of 20 studies conducted between 1981and 2011 on hypertension in tribes reported the pooled prevalence of hypertension as 16.1 per cent[5]. Kalkonde *et al*[6] have reported high cause-specific mortality fraction (14.3%) due to stroke in the tribal population of Gadchiroli and attributed it to the large undiagnosed hypertension load. Ganie *et al*[7] this issue have reported a high prevalence of hypertension (41.4%) among a tribal population of hilly regions of Kashmir, India. Tribal men showed slightly higher prevalence of hypertension (46.7%) than women (37.9%). They have also reported 35 per cent prevalence of prehypertension in this population.

The blood pressure levels of tribal populations are due to an interaction between contrasting forces of a protective traditional lifestyle (frugal diet and high physical activity) and factors which increase vulnerability such as high substance use and persistent under nutrition during childhood along with changing lifestyle in adulthood as they get integrated into the society. An additional factor in the hilly regions would be the high altitude and adaptation. While acute exposure to high altitude causes an increase in blood pressure, chronic exposure results in more complex adaptive changes. The difference in the relationship between altitude and blood pressure levels between Tibetan and non-Tibetan populations (Andeans) has been explained by the presence of unique phenotypes, which may have resulted from the fact that Tibetans settled at high altitude lands much earlier (≈25,000 yr ago) than Andeans (≈11,000 yr ago)[8,9].

Irrespective of the underlying causes, addressing hypertension among the tribal population of India needs attention[10]. The report of the Committee on Tribal Health in India noted the high rate of hypertension in this group and also the fact that <10 per cent of those with hypertension were aware that they had hypertension, highlighting the issue of awareness and poor access to hypertension diagnostic services. The Committee did not include hypertension control among the top ten focus areas which were largely devoted to maternal and child health services[11].

The prevention and control of hypertension can be achieved by the application of targeted and/or population-based strategies. These include measures aimed at prevention, detection, awareness and

management of hypertension[12]. The approach for addressing hypertension in the tribal population will follow the same principles as any other population and would include increasing access to care (both for diagnosis and treatment), lifestyle and educational interventions and community participation.

A systematic review reported that there was limited evidence of the impact of primary healthcare system or service level attributes on health outcomes of Indigenous people with type 2 diabetes, a condition which has many overlapping features with hypertension in terms of prevention and control approaches[13]. With poor access to healthcare being a defining characteristic of a tribal community, the components of any intervention model will have to include the role of community health workers (CHWs), mobile clinics and use of technology to make a seamless package of services. Active interventions including the use of non-physician practitioners such as pharmacists and use of mHealth interventions were advocated to achieve blood pressure control in the rural and remote Canadian First Nations[14]. A three years cluster randomized controlled trial currently underway in 32 villages of Gadchiroli at Madhya Pradesh, India, to test a package of interventions (screening by trained CHWs; referral to a mobile outreach clinic for initiation of treatment and follow up and counselling by the CHWs through monthly home visits) can provide important insights on the feasibility and effectiveness of this approach for addressing hypertension in the tribal populations of India[15].

Almost 90 per cent of the tribal population of India lives in the rural areas. There are 90 districts where tribal population constitute more than 50 per cent of their population and together, they account for 45 per cent of the total tribal population of India[11]. These districts should be prioritized, and pilot projects need to be started for hypertension control among tribal population. Some of the government initiatives provide opportunities for integration of hypertension control into routine health care. The use of Mobile Medical Unit and the policy of a geographical norm (within 30 min walk) in tribal, forest and hilly areas in the National Health Policy 2017 is a welcome step[16]. The recently launched *Ayushman Bharat* aims to establish Health and Wellness Centres (HWCs) to provide quality comprehensive primary healthcare services. These HWCs will be managed by the trained Community Health Officers to provide wide range of services including screening, early detection and adherence of treatment of hypertension[17].

In addition to these most needed initiatives, there is a need to set up population-based cohorts in the tribal population to understand their lifestyle and nutrition transitions and their impact on CVDs including hypertension. These will help us in adapting our interventions to specific requirements of the tribal populations. By addressing chronic diseases including hypertension among the tribal population of India promptly, we have the opportunity to address this grave situation.

***Conflicts of Interest*:** None.

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