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Arsenicosis in Bangladesh: Behavioral, Socio-Cultural and Environmental Factors

Abstract

Recent WHO Report indicates people in Bangladesh are chronically exposed to arsenic through Groundwater Contamination which leads to lung, bladder and skin cancers. Despite a number of corrective and precautionary measures, the unfold of Arsenic contamination in groundwater endured to develop and more new areas have been delivered to the listing of contaminated location. The hassle resolving issues, hence, regarded to be partial and inadequate, which need to be reinforced with the aid of strategic clinical backing.

Keywords: Arsenic contamination; Arsenicosis; Ground water contamination

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Introduction

According to WHO the contamination of groundwater by arsenic in Bangladesh is considered as the largest mass poisoning of a population in history. The scale of this environmental disaster is greater than any seen before; it is beyond the accidents at Bhopal, India in 1984 and Chernobyl, Ukraine in 1986. Taken together with the discovery of arsenic in groundwater in other countries, the experience in Bangladesh demands that groundwater sources throughout the world that are used for drinking-water should be tested for arsenic. Studies indicate that 1 in 10 people who drink water containing 50 ppb of arsenic per liter for long term may ultimately die from cancers caused by arsenic, including lung, bladder and skin cancers and also suffer from wide range of other chronic debilitating health problems [1]. Millions of people worldwide are chronically exposed to arsenic through drinking water, including 35-77 million people in Bangladesh [2]. The risk factors and effect of arsenicosis is interlink with socio-cultural and environment including behavior pattern. The view paper is based on these interlink association.

Behavioral Factors Related to Arsenicosis

Ground water dependency for drinking and cooking

Previously Bangladeshi people used surface water for drinking and cooking. But this led to the outbreak of Cholera, Diarrhoea and other water borne diseases. Then UNICEF and other partner

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organizations suggested for the use of ground water mainly for drinking. The partner organizations donated for the installation of tube wells almost all over Bangladesh. Though this step eradicates the outbreak of water borne diseases but it exposed our people to the life-threatening arsenicosis. As main source of arsenic is groundwater, so drinking and cooking by groundwater has become the main access route of arsenic ingestion in our body.

Sole dependence on rice as staple food

The Bangladeshis are called "Mace Vate Bangali". We, the Bangladeshis are dependent on rice as our staple food. But studies have shown that those who ate large amounts of rice showed higher levels of arsenic in their systems compared to those who did not. Furthermore, those who ate more rice had more symptoms such as skin lesions, a sign of arsenic toxicity in the body. The study is based on data from the Health Effects of Arsenic Longitudinal Study (HEALS) in Araihazar, Bangladesh using the urinary and dietary analysis of 18,470 Bangladeshis. Moreover, Paddy has a distinct tendency to draw arsenic directly from ground.

Exposure to tobacco as cheap recreation

Most of our people do not get the opportunity of recreation. The only recreation for them is to sit in the tea-stalls, gossiping and

have a cup of tea with biri/cigarette. This is another important factor for arsenicosis in Bangladesh [3]. Studies have shown that every cigarette smoking emits 0.04 to 0.12 microgram arsenic in the household air (Source: US EPA. Review draft of health effects).

Lack of awareness regarding health seeking behaviour and health education: Our people are not well educated and most of them live in the village. Many of the rural population do not have adequate knowledge regarding the manifestations of arsenicosis and where to seek help for this.

Lack of tendency to exercise: Generally, our people are reluctant to exercise. As arsenicosis is evidently related to CVD, lack of exercise often enhance the intensity of this problem [3,4].

Negligence in collecting safe water: The Arsenic-free tube wells are often installed at one tube well for a para/ward. Often the safe tube wells are installed in a place which is away from one's house. So people neglect to collect safe water from those tube wells going away from home. Rather they prefer to drink arsenic containing tube well water near their home. This tendency is also enhancing the intensity of arsenicosis in Bangladesh.

Social and Cultural Factors

Superstitions and prejudices

Our people are generally God fearing. Many of them are illiterate. They do not have the prior scientific knowledge. The skin manifestations of arsenicosis are considered as sign of misfortune, wrath of Allah or influence of Satan-in many areas of Bangladesh people don't even feel like they need to seek medical advice. Most often they accept it as their nemesis [5,6].

Poverty

Poor access to health services: Our people are poor. So, they are unable to afford the convene, consultation fee, medication and diet in case of their illness from arsenic related diseases.

Malnutrition: Poverty causes poor access to safer vegetables (those cost much and are enriched with essential nutrients) and malnutrition which enhances the hazards from arsenic related diseases [7,8].

Tendency to boil ground water: Most of our people have got a vague idea that if they boil the arsenic containing water, it will become arsenic free and this tendency increases the concentration of arsenic in that water.

Environmental Factors

 Naturally occurring pathways of arsenic exposure include volcanic ash, weathering of arsenic-containing minerals and ores [8]. The process of our land formation was done by volcanic activities over thousands of years.

- Arsenic loaded Ganges and Brahmaputra water flooded our lands every year which has loaded our land with arsenic naturally.
- Environmental pollution by using treated wood products such as furnitures, electric poles, house building materials have exposed us to Arsenic
- Arsenic containing pesticides and herbicides are being used in a large scale over quite a long period of time. This is also exposing us to arsenic.

Effects of arsenic exposure at socio-cultural levels

Social Instability: Social or personal conflict over the ownership of arsenic-free tube wells contributes to destruction of social harmony and network relationships as it is considered as a status in the society.

Ostracism: Arsenic patients are often identified by the society as patients of leprosy and as a result they remain ostracized, at either the household or the village level [9-11]. Children of arsenic patients are not allowed to attend social or religious functions. The patients as well as their close relatives are not allowed to use public tube wells and village ponds. Often family members, like husbands or wives, abandon the arsenicosis victims.

Social Isolation: The entry of arsenic affected children into schools become restricted. Some may be denied the opportunity to go to school. They also are subject to social isolation by their friends and classmates.

Diminished working ability: Gangrene from arsenicosis cripples the victim and makes him or her unable to do hard labor. This leads to poor employment or unemployment resulting in poverty.

Marriage related problems: Arsenic has an adverse impact on marital relationships. People are reluctant to develop marital relationships with families whose members suffer from arsenicosis. This has caused serious anxiety for parents of unmarried adult children. Many women are divorced or abandoned by their husbands due to arsenicosis.

Additional burden on women: Often the skin lesions from arsenicosis force the female victims to adopt borkha for cosmetic purpose. In our country, the females are seen to do the household chores including collection of drinking water from arsenic free tube wells putting additional burden on them.

Conclusion

Arsenicosis is undoubtedly an inevitable, naturally occurring disaster for the human civilization today and Bangladesh is evidently the worst victim of this calamity. We need to handle this situation effectively and promptly to save our nation from upcoming burden of cancerous health disaster and to ensure the existence of our healthy offspring.

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