Symbiosis

www.symbiosisonlinepublishing.com

Editorial | International Journal of Thyroid Disorders and Therapy | Open Access

Universal salt iodization as the modality to combat Iodine deficiency in India

Rashmi Aggarwal[1*]

[1]*Department of Thyroid and Endocrine Research Institute of Nuclear Medicine and Allies Sciences, Timarpur, Delhi, India*

Received: February 22, 2019; Accepted: : March 21, 2019; Published: March 27, 2019

***Corresponding author:** Dr. Rashmi Aggarwal, Department Of Thyroid And Endocrine Research, Institute Of Nuclear Medicine And Allied Sciences, Timarpur, Delhi, India Email: drarashmi@yahoo.co.in*

Abstract

Iodine deficiency disorders are one of the largest nutritional causes of preventable brain damage. Iodine is one of the five nutrient (others being iron, folic acid, vitamin A and zinc) whose deficiency form a major public health problem in India. Iodine is a micronutrient much needed for the normal functioning of the thyroid gland. Deficiency of iodine leads a whole spectrum of iodine deficiency disorders including goitre ,cretinism, repeated abortions, still birth ,mental retardation, and pshyological impairment. The main cause of iodine deficiency in our country lies in soil which becomes iodine deficient due to soil erosion and leaching. Rapid urbanization and industrialization in our country has led to deforestation which in turn causes frequent flooding and loss of top soil. Crops grown in such iodine deficient soil leads to iodine deficiency in livestock and humans.

The Magnitude of IDD in India

Iodine deficiency is a global public health problem. According to the most recent global estimate, 1.88 billion people are at risk of iodine deficiency [1]. If we look at the extend of problem in India , out of the 325 districts surveyed in India so far, 263 districts were endemic for iodine deficiency, i.e. the prevalence of IDD (Iodine Deficiency Disorders) is above 10 per cent in the population. Every year nine million pregnant women and eight million newborns are at risk of IDD in India. These estimates are based on the household-level coverage of adequately iodized salt as reported in Coverage Evaluation Survey (CES) 2009 and extrapolated to total population estimates from Census 2011 [2].

Universal Salt Iodization: Key Strategy to Combat IDD

The strategy of Universal salt iodization (USI), that is iodization of all salt consumed by humans, can be seen today as a highly cost effective method to prevent iodine deficiency world over. A country is said to have achieved USI when at least 90% of households are consuming adequately iodised salt (≥ 15 ppm) [3]. Universal Salt Iodization was first initiated in United States of America (USA) and Switzerland in 1920s [4]. India was one of the first countries in the world to start a public health programme to address iodine deficiency disorders based on salt iodization.

The Government of India established the National Goitre Control Programme (NGCP) in 1962 and the main objective of this Programme was to identify the goitre-endemic regions of the country and supplement iodine to the entire population in these regions [5]. The process of iodization of salt was started in a phased manner in our country since 1986. Iodized salt was brought under the revised Prevention of Food Adulteration (PFA) Act of 1988 [6]. The NGCP was renamed as National IDD Control Programme (NIDDCP) in 1992 to emphasize the wider implications of iodine deficiency which was earlier restricted only to goitre. The PFA Act stipulates the minimum iodine content of salt at the production and consumption levels at 30 and 15 parts per million, respectively [7]. As government of India was facing a lot of criticism against USI, the central government lifted the ban in 2000 [8]. Five years later, the government of India was able to re instate the nationwide ban on the sale of noniodized salt in 2005 [9].

IDD control programme in India is a success story of a public health programme. With increased availability of iodized salt and increased awareness about the benefits of consuming iodized salt among the people, at least 71 percent of households in India are now consuming adequately iodized salt. Iodized salt production in India was less than two hundred thousand metric tons (MT) per year in 1980s. Presently the total production of iodized salt in our country is 5.82 million MT per year [10].

Iodised Salt in India

For prevention of IDD, fortification of salt in India is done using potassium iodate because it is more stable. Although some countries like United States of America are using potassium iodide for fortification but because of the weather conditions in India, potassium iodate is preferred. Iodine the basic raw material needed for salt iodization – has to be imported. Due to the increasing global price of iodine, the cost of potassium iodate has increased in India in the last few years [12]. In order to make the prices of common salt and iodized salt at par, government of India has made efforts to provide iodized salt at prices comparable to common salt to citizens below the poverty line through the Public Distribution System network in several states in India.

Monitoring of Salt Iodization Programme

Globally there are 120 countries in the world that have a salt iodization programme in place, several of these countries including India are facing challenges in terms of monitoring the quality of iodized salt.

To ensure the supply of adequately iodized salt, meticulous monitoring of the iodine level is required at different levels starting from the production level, during transport by rail or road, the wholesale level, retailer level, and the consumer level (that is the household) level. India is the third largest salt producer in the world and has close to 13,000 salt producers [11]. Therefore, monitoring is a key challenge at the production level with such a vast network.

Conclusion

IDD control programme in India is one of the success stories of public health in the country. The current 91 per cent household level coverage of iodized salt in India, of which 71 per cent is adequately iodized salt, is a big achievement.

References

1. Andersson M, Karumbunathan V, Zimmermann M.B. Global iodine status in 2011 and trends over past decade. Journal of Nutrition. 2012;142(4):744–750. doi: 10.3945/jn.111.149393
2. New Delhi: Office of Registrar General and Census Commissioner. Ministry of Home affairs, Government of India. 2011. Available from: http://censusindia.gov.in/2011-prov-results/prov_results_paper1_india.html,
3. Rah JH, Anas AM, Chakrabarty A, Sankar R, Pandav CS, Aguayo VM. Towards universal salt iodisation in India: Achievements, challenges and future actions. Matern Child Nutr. 2015;11(4):483-496. doi: 10.1111/mcn.12044
4. Kimball OP. History of the prevention of endemic goitre. Bull World Health Organ. 1953;9(2): 241.
5. Pandav CS, Kochupillai N, Karmarkar MG, Nath LM. Iodine deficiency disorders in India: review of control measures. Indian Pediatr. 1986;23(5):325-329.
6. Prevention of Food Adulteration Act: 1954 (along with Rules, Notifications and Commodity index). 1994.16th edition, Lucknow, Eastern Book Company.
7. The Salt Department. Quality of Salt under PFA Act. 2007.Available from: http://www.saltcomindia.gov.in/
8. Ministry of Health and Family Welfare Gazette of India, Extraordinary. 2000;Part II(3).
9. Ministry of Health and Family Welfare. Gazette of India, Extraordinary. 2005;226.
10. Salt Commissioner of India. Annual Report 2009-2010. Salt Department, Ministry of Commerce and Industry. 2010. Government of India. New Delhi.
11. Sundaresan S. Towards universal salt iodization in India by 2010. A strategy for the final push. Jaipur: Salt Department, Government of India. 2009.
12. Yadav K, Pandav CS, Karmarkar MG. Adequately iodized salt covered seventy-one percent of India in 2009. IDD Newsl. 2011;39:2–5.