

Journal of Coastal Life Medicine

journal homepage: www.jclmm.com



Document heading

doi: 10.12980/JCLM.2.201414J49

© 2014 by the Journal of Coastal Life Medicine. All rights reserved.

Iodine content in salt sold in sea coastal province, Thailand: quality reflection

Sora Yasri^{1*}, Viroj Wiwanitkit²¹KMT Primary Medical Center, Bangkok, Thailand²Visiting Professor, Hainan Medical University, China; Visiting Professor, Faculty of Medicine, University of Nis, Serbia; Adjunct Professor, Joseph Ayobabalola University, Nigeria

ARTICLE INFO

Article history:

Received 16 Jun 2014

Received in revised form 26 Jun 2014

Accepted 10 Jul 2014

Available online 7 Oct 2014

Keywords:

Salt
Iodine
Sea
Coastal
Province

ABSTRACT

Objective: To call for attention that the problem of iodine deficiency and low salt quality can still be seen in sea coastal province.**Methods:** A total of 225 salt samples from each available marine salt shop in the sea coastal province of Thailand were collected. All samples were passed to the laboratory for the analysis of iodine content. The basic screening tool was I-KIT test (Mahidol University, Thailand), which was the standard test used in previous survey.**Results:** Of overall 225 samples, there was no sample that could pass the acceptable criteria of iodine content (100 mg/L). It gave the iodine content failure rate equal to 0%.**Conclusions:** Intensive research of the iodine content in salt sold and available in a sea coastal province of Thailand shows that the salt sold in salt shop in this sea coastal province is not locally available from marine salt field but from the dirt salt field from remote provinces because of the higher cost of marine salt. As a result, the control of salt quality in any areas is still needed. The use of iodine fortification should be applied to any areas, sea coastal or non sea coastal.

1. Introduction

Iodine is an important micronutrient that cannot be lacked. Iodine deficiency becomes an important problem in medicine^[1–3]. The important main source of iodine for human beings is the marine salt. The problem of iodine deficiency is common among the land lock countries^[4–6]. However, the problem in the coastal area should not be overlooked. The quality of the salt sold and used in the

area should be assessed since it might reflect the chance of iodine deficiency in each area. Here, the authors report an interesting basic salt survey in a sea coastal province, Thailand. Interestingly, the salt samples do not pass the acceptable criteria of iodine content. This calls for attention that the problem of iodine deficiency and low salt quality can still be seen in sea coastal province.

2. Materials and methods

This work is a descriptive survey study. The survey was performed during 2010 in a coastal province of Thailand. The authors collected 225 salt samples from

*Corresponding author: Sora Yasri, KMT Primary Medical Center, Bangkok, Thailand.
E-mail: sorayasri@outlook.co.th

each available marine salt shop in the studied area. All samples were passed to the laboratory for the analysis of iodine content. The basic screening tool was I-KIT test (Mahidol University, Thailand), which was the standard test used in previous survey[7]. It was a kind of colorimetric test which could semi-quantitatively identify the iodine content in salt sample as 0, 10, 30, 50 and 100 mg/L.

3. Results

Of overall 225 samples, there was no sample that could pass the acceptable criteria of iodine content (100 mg/L). It gave the iodine content failure rate equal to 0%.

4. Discussion

Iodine is an important nutrient that strongly relates to the endocrine function[1–3]. In synthesis of thyroid hormone, iodine is required[1–3]. If lack for iodine, the problem of iodine deficiency disorder and hypothyroidism can be expected. Since this problem can relate to permanent neuro deficit, it is a serious problem[1–3]. In many land lock areas, the problem of iodine deficiency can be seen and it is the worldwide policy for control of this disease by supplementation of iodine.

In general, marine salt is the basic cheap source of iodine. However, the quality of the salt is not frequently mentioned. To assess the quality of salt is a basic concept. The test for iodine content in the salt using in land lock area can be the indicator for success in iodine supplementation program. However, as already mentioned, the quality of the salt used in the sea coastal area is usually forgotten. Here, the authors perform a survey to assess the iodine content in salt sold and available in a sea coastal province of Thailand.

Of interest, although it is a sea coastal area, the salt sold in salt shop still has poor iodine quality. This implies some problems. According to in-depth interview, it shows that the salt sold in salt shop in this sea coastal province is not locally available from marine salt field but from the dirt salt field from remote provinces. This is because of the higher cost of marine salt. Hence,

the control of salt quality in any area is still needed. The use of iodine fortification should be applied to any areas, sea coastal or non sea coastal. This is also similar to the previous suggestion by Valentino *et al.* that “the assessment of iodine deficiency should therefore involve the entire population and not only subjects living far from the sea”[8].

Conflict of interest statement

We declare that we have no conflict of interest.

References

- [1] Santana Lopes M, Jácome de Castro J, Marcelino M, Oliveira MJ, Carrilho F, Limbert E, et al. [Iodine and thyroid: what a clinic should know]. *Acta Med Port* 2012; **25**(3): 174–178. Portuguese.
- [2] Zimmermann MB, Andersson M. Assessment of iodine nutrition in populations: past, present, and future. *Nutr Rev* 2012; **70**(10): 553–570.
- [3] Zimmermann MB, Andersson M. Update on iodine status worldwide. *Curr Opin Endocrinol Diabetes Obes* 2012; **19**(5): 382–387.
- [4] Fiore E, Tonacchera M, Vitti P. Influence of iodization programmes on the epidemiology of nodular goitre. *Best Pract Res Clin Endocrinol Metab* 2014; **28**(4): 577–588.
- [5] Carlé A, Krejbjerg A, Laurberg P. Epidemiology of nodular goitre. Influence of iodine intake. *Best Pract Res Clin Endocrinol Metab* 2014; **28**(4): 465–479.
- [6] Chung HR. Iodine and thyroid function. *Ann Pediatr Endocrinol Metab* 2014; **19**(1): 8–12.
- [7] Wiwanitkit V. A field survey of iodine supplementation of primary school children and their parents in a rural village in the endemic area of iodine deficiency disorder, northeastern Thailand. *Rural Remote Health* 2007; **7**(2): 599.
- [8] Valentino R, Savastano S, Tommaselli AP, Di Biase S, Calvanese E, Carbone D, et al. Screening a coastal population in Southern Italy: iodine deficiency and prevalence of goitre, nutritional aspects and cardiovascular risk factors. *Nutr Metab Cardiovasc Dis* 2004; **14**(1): 15–19.