



Determining Iodine Status and Knowledge of Dietary Salt Restricted Hypertension Patients in Addis Ababa Hospitals, Ethiopia

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Method

Abstract

Introduction: Hypertension is public health problem worldwide and the trends of prevalence have increased in economically developing countries. Reducing dietary sodium is one of the main recommendations to treatment hypertension. Restriction of salt consumption could cause a reduction of iodine intake from iodized salt.

Objective: Determining iodine status and knowledge of dietary salt restricted hypertensive patients and compare with non hypertensive.

Method: Institution based cross-sectional design was employed and 239 hypertensive and non hypertensive individuals were selected randomly.

Result: The MUIC were 41.56(SE9.41µg/L) and 46.14(SE7.86µg/L) in hypertensive and non hypertensive respectively. The prevalence of iodine deficiency is higher in salt restricted hypertensive patients than non restricted patients.

Conclusion: Iodine deficiency is a problem of dietary salt restricted hypertensive patients and an alternative iodine intervention mechanism should be in place.

Institutional based cross sectional comparative quantitative study was conducted. Statistically adequate sample size of hypertensive and non hypertensive patients was determined based on two population proportion. Simple random sampling method was applied to collect the information. Estimates of the iodine status are based on the measurements of the excretion of iodine in urine. Urine samples were prepared in duplicate and the iodine nutritional status was determined using urinary iodine cutoffs defined by the world health organization.

Results

Table 1. Description of demographic characteristics of respondents, Addis Ababa 2012

		Frequency(n=239)	Percentage
Sex	Male	87	36.6
	Female	152	63.4
Educational Status	Illiterate	57	23.8
	Primary school	78	32.6
	Secondary school	48	20.1
	Higher non standard curriculum	48	20.1
Occupation	schooling	11	4.6
	Merchant	18	7.5
	Housewife	70	29.3
	Waged	103	58.6
Marital Status	Single	57	23.8
	Married	157	65.7
	Separated	14	5.9
Income per month	Widowed	11	4.6
	<1000	63	60.58
	1000-2000	21	20.19
	2000-3000	12	11.54
>3000	8	7.69	

Background

Iodine is an important micronutrient needed for the synthesis of thyroid hormones, which is essential for the normal functioning of human body and diet is the major source of iodine (WHO, 2001; Meno et al., 2011). The primary cause of iodine deficiency is a low dietary supply of iodine. Insufficient intake or/and inefficient absorption of iodine from the diet leads to insufficient and inadequate production of thyroid hormones, which affects many different parts of the body.

Hypertension has become a significant problem in many developing countries. Limited data on the trends of prevalence of hypertension suggest that it has increased in economically developing countries in recent years while it remained stable or decreased in developed countries (Kearney et al., 2005; Tayie and Jourdan, 2010).

Salt consumption in Ethiopia currently exceeds WHO recommendation. The national mean consumption of salt was 8.4 + 5.9 g/person/day and in Addis Ababa mean salt consumption was 9.9 + 8.0 g/day (Abuye et al., 2007).

Restriction of dietary salt consumption as a treatment option for hypertension could cause a significant reducing of iodine intake and hence risk of iodine deficiency. In a study done by Meno et al. (2011), iodine deficiency is significantly more common in subjects with a history of hypertension than the subjects without a history of hypertension.

Iodine deficiency with its health complications and hypertension are the public health problems of Ethiopia. Currently both health problems need immediate intervention.

The knowledge of hypertension patients about importance of restricting consumption of salt to reduce the severity of the disease may compromise the amount of iodine taken from fortified salt.

Table 2. Iodine status based on median UIC among hypertensive and non hypertensive patients Addis Ababa, 2012.

Hypertension status	Urine iodine concentration median (SE)	Number (percentage) by urinary iodine concentration in µg/L (n=208)				
		<20	20-49.9	50-99.9	100-199.9	>200
HTN	Male	10(8.85%)	8(7.08%)	16(14.16%)	8(7.08%)	0
	Female	24(21.23%)	19(16.81%)	11(9.73%)	10(8.85%)	7(6.19%)
	Total	41.56(9.41)	34(30.08%)	27(23.89%)	27(23.89%)	18(15.92%)
Non HTN	Male	14(14.74%)	6(6.32%)	7(7.37%)	8(8.42%)	3(3.16%)
	Female	17(17.89%)	17(17.89%)	8(8.42%)	13(13.68%)	2(2.11%)
	Total	46.14(7.86)	31(32.6%)	23(24.2%)	15(15.79%)	21(22.1%)

Table 3. Knowledge of participants in about importance of iodized salt

Knowledge assessment questions	Frequency by sex(n=237)		
	Female	Male	Total
Have you heard about iodized salt?			
Yes	68	39	107
No	82	48	130
Do you know the importance of iodide salt?			
Yes	52	35	87
No	94	51	145
What is its importance?			
Increase intellectual capacity	12	1	13
Increase physical capacity	1	0	1
Prevent goiter	40	33	73
Food sources of iodine			
Meat	0	1	1
Milk	4	1	4
Bread	3	0	3
Fish and sea food	18	4	18
Fruit and vegetables	4	0	4
Don't know	196		196

Conclusions

The proportions of patients with inadequate iodine intakes were quite high in both populations surveyed. Urinary iodide excretions of hypertensive and non hypertensive are considerably lower than the recommended dietary intake of iodine of 150µg/day for adults.

Sample urinary iodine level varied from below detection limit to highest level which is indicator of disproportionate iodine content in the food. The knowledge of study participants about importance of iodine and food source of iodine is limited and alternative iodine intervention mechanism for hypertensive patients should be in place.

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