

Prevalence of Goitre in Schools and Colleges of Multan

Pages with reference to book, From 45 To 48

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Abstract

A survey was done from November 1979 to early 1982 in a closed community of 20074 school college and university students in Multan District, to detect, endemic goitre.

Of individuals examined, 4.43% had goitre. There was a female preponderance, with maximum number of cases being in 11 to 15 year age group. Twenty eight percent had a positive family history for goitre.

The prevention of endemic goitre by adding potassium Iodide to common salt or intramuscular injections of iodinated oil to women of childbearing age and an adequate nutrition for growing children along with health education has been suggested (.JPMA 35:45. 1985).

Introduction

A joint survey conducted by the departments of Community and Forensic Medicine, Nishtar Medical College, in the Urban areas of Multan, to study the prevalence of simple goitre in school children and students of colleges and university is presented here.

Material and Methods

A random sample of 8119 children of both sexes was taken from the schools and 11955 from various colleges and the University of Multan thus making the sample size 20074.

The school children and the college and University students were taken as normal individuals. A random sample was examined, presuming that the population selected will exhibit the relevant characteristics of the aggregate.

Results

Goitre was found in 4.43% of the students examined. The prevalence in males was 3.6% and in females 6.07%.

The presence of goitre according to the age is presented in Table I.

Table I
Prevalence of Goitre in Different Age Groups.

Age	Total Examined		Positive		Percentage		Total positive percentage	
	M	F	M	F	M	F	M	F
11 - 15	5004	2788	218	348	4.36	801		
16 - 25	8362	3920	263	59	3.15	1.51	3.60	6.07

The maximum number of cases were seen in 11-15 years age group.

Table – II

Distribution of Goitre in Rural & Urban Population.

Age Group	Urban		Rural		Total		Total	%age
	Male	Female	Male	Female	Urban	Rural		
11 – 15 Years	105	320	113	46	407	159	566	63.7
16 – 20 "	133	24	88	22	157	110	267	30.1
21 – 25 "	18	3	24	10	21	34	55	6.2
	256	329	225	78	585	303	888	100.0
	(28.8%)	(37.1%)	(25.3%)	(8.8%)	(65.9%)	(34.1%)	(100%)	100.0

Table II shows the urban and rural distribution of goitre in the different age groups.

Individuals examined were divided according to the family's monthly income. An income of less than Rs. 700.00 per month was taken as lower class while the middle class had an earning ranging between Rs. 701.00 and Rs. 1,500.00 per month. Above Rs. 1,500.00 per month was considered as the upper class (Table III).

Table – III

Monthly Family Income.

Socio-economic	Upper	Middle	Lower	Total
Urban Males	66	114	76	256
Urban Females	127	93	109	329
Rural Males	46	89	90	225
Rural Females	26	27	25	78
Total	265	323	300	888
	(29.84%)	(36.36%)	(33.78%)	(100%)

There was a family history of goitre in 28.26% cases. The source of drinking water was handpump in 71.95%, 27-60 percent utilized municipal water supply and 0.45 percent used canal or well water. Distribution of goitre cases according to age and weight are shown in Table IV.

Table -- IV

Distribution of Goitre According to Weight and Age.

Age in years	Male		Female	
	Av. weight (Kg)	Std. weight (Kg)	Av. weight (Kg)	Std. weight (Kg)
11 -- 15	15.08	38	32.00	36
16 -- 20	16.05	60	45.56	60
21 -- 25	52.72	66	53.40	66

The average weight of the goitre population was lower than the standard weight in the population surveyed in the series.

Table -- V

Average Pulse & Blood Pressure of Cases Having Goitre.

Age	PULSE			B.P. (SYSTOLIC)			B.P. (DIASTOLIC)		
	11-15	16-20	21-25	11-15	16-20	21-25	11-15	16-20	21-25
Male Urban	84.35	82.96	81.89	114.33	117.69	122.55	69.80	75.35	76.38
	±8.29	±9.45	±8.41	±7.32	±7.71	±8.61	±6.01	±6.61	±8.51
Male Rural	86.26	84.49	79.98	112.48	118.45	121.98	68.02	72.76	75.66
	±5.55	±10.05	±9.92	±4.92	±10.55	±6.45	±5.69	±7.71	±8.51
Femal Urban	94.53	89.99	85.55	114.56	118.69	122.21	70.54	74.48	76.99
	±11.96	±11.80	±4.91	±9.93	±8.56	±8.53	±7.31	±6.48	±6.81
Female Rural	90.59	93.27	85.55	112.63	116.36	118.24	73.97	75.48	76.38
	±4.93	±8.72	±4.91	±5.01	±6.17	±6.49	±8.76	±5.34	±7.32

Table – VI		Size of Goitre					
		Vertical			Transverse		
Groups	Age	11–15	16–20	21–25	11–15	16–20	21–25
Male Urban		5.57	3.68	8.83	4.22	3.82	4.34
		±1.63	±1.69	±1.71	±0.92	±1.25	±1.20
Male Rural		6.04	4.49	3.88	4.28	4.46	4.48
		±1.91	±2.01	±1.73	±1.33	±2.21	±2.81
Female Urban		5.68	4.85	4.96	5.99	6.48	4.89
		±1.59	±1.49	±0.76	±2.26	±1.49	±1.20
Female Rural		4.61	4.56	5.01	5.33	6.99	5.10
		±1.30	±1.51	±1.43	±2.26	±1.57	±1.23

Table V and VI show the pulse and blood pressure, and vertical and transverse measurements of the goitre with standard deviation.

Discussion

Endemic goitre is caused by the lack of iodine in water and food. If the intake of iodine is adequate for normal needs, goitre may develop due to unusually high requirements, defective absorption or poor utilization of this trace element. Excess consumption of foods rich in cyanates as cabbages, or medicines containing cyanates, lower the iodine content of the thyroid gland leading to goitre¹.

Goitre is considered endemic when it occurs in a significant proportion of people living in a circumscribed area. Although other factors may be contributory in most areas where goitre is endemic the iodine intake is insufficient.

Endemic goitre surveys consist of the examination of the entire population. As this is often not possible due to social and organizational difficulties² the present survey was confined to a closed community of school children and college and university students. The prevalence rate of 4.43 percent is comparable to a similar study³ where goitre prevalence was 5.013 percent. Haq⁴ reported an incidence of 14.5% in rural and 28.35% in Urban areas of Azad Kashmir indicating a high occurrence in hilly areas. In a survey carried out near Islamabad, 4.2% of the pre-school children were found to have goitre⁵.

Goitre is 4 to 8 times more common in females.¹ In this study goitre was detected in 6.067% females as compared to 3.599% males. Zafar³ found female to male ratio of 5:4. The higher incidence in adolescent girls is due to their higher iodine requirements.

A much higher prevalence of goitre in the 11 to 15 years age group can be attributed to the increased demand of iodine at puberty particularly in females. Most of the cases reported by Zafar³ were also in the age group of 13 - 16 years.

The survey shows a higher percentage of the urban population suffering from goitre especially females. But this would have been even higher if females from rural areas were also included.

The deficiency of iodine in local soils affects all classes equally. A little fall in the percentage of goitre cases in the upper socioeconomic class could be attributed to a better nutrition.

The cases studied had different sources of drinking water, majority of the subjects were using hand

pump water. In an earlier series³ 50% of the people used water from deep wells. This indicates that if the soil is iodine deficient then all ground water has a low iodine concentration. The average body weight of the goitre cases is similar to previous observations³. Body weight lower than the standard weight of the population may be due to lack of other nutrients apart from iodine in the group.⁶ The hypothesis, that iodine deficiency is the major factor in the development of simple goitre, is fairly well established in various endemic areas of the world. These regions show a definite low content of iodine in water and food. The presence of thyroid enlargement in a significant number of persons, living in the urban areas of Multan, with a positive family history in this survey, is a strong evidence for its endemicity. WHO considers endemic goitre as a serious health problem when in a given area more than 5 percent of adolescent girls suffer from it. In this group the incidence was 8.01 percent which indicates the magnitude of the problem.

Goitre is widely prevalent in urban population of Multan. In the course of gradual economic development the problem may be alleviated but in areas of high endemicity, more active steps are necessary. There can be two methods for direct intervention addition of iodine to salt and periodic intramuscular injections of iodinated oil. Potassium iodide 1: 10,000 parts added to sodium chloride is possible where common salt is centrally processed or marketed. The colour, taste and other characteristics are not altered and this method is cheap and effective. A second alternative is intramuscular injection in women of child bearing age with a specially prepared iodinated oil which provides enough iodine for 3-5 years. It also reduces the risk of iodine deficiency in the offspring which can lead to grave consequences from subclinical mental retardation to cretinism and deafmutism. The arrangements for school meals must be adequate to provide a balanced diet to growing children. These can be supplied free or at subsidized rates. The children should be examined thoroughly for other disease and the disease in question. Goitre if present should be treated. The ailments and malnutrition of the communities should be eradicated by comprehensive health cover to wipe out such problems for health promotion of the people.

Health education, should be imparted to the masses by involving all available media on national level, to create an awareness about this malady. Health education is not only the responsibility of the professional health educators but it may be rendered through physicians, surgeons, other specialists, general practitioners, para medical staff, sanitation officers, social workers, teachers and Imams of the mosques.

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