

Prevalence of goitre in Balaghat ranges of Beed district

N S Inamdar^{1*}, A H Salgar²

¹Associate Professor, ²Assistant Professor, Department of Community Medicine, MNR Medical College, Sangareddy Medak Dist. Telangana, INDIA.

Email: adirlep@rediffmail.com

Abstract

Introduction: In Maharashtra the goitre has been reported in the regions of Sahyadri at Mahabaleshwar area, in Satpura ranges in Dhule district from the city of Mumbai and in the districts of Aurangabad, Pune, Wardha, Buldhana, Amravati and Jalna. In the present study we tried to find the prevalence of goitre in Malewadi area of Balaghat ranges, which is not an endemic area as per the government records but more cases has been diagnosed in this area. **Aims and Objectives:** To study the Prevalence of goitre in Balaghat ranges of Beed District. **Material and Method:** The present study was carried out in Malewadi area_Balaghat ranges of Beed District. The whole population of the study villages i.e. Malewadi, Malewadi Tanda, Dattawadi and Mandva was surveyed. Help of the appropriate village authorities was taken during the survey. All the houses were numbered serially and visited accordingly to be sure not to miss any house. The inhabitants present were examined clinically in the full day light and in standing position in morning hours only. Clinical examination was done for presence of goitre. **Results:** A total population of 2097 was covered in this study, which was 82.04% of the actual population of the area (2556). The examined population contained 987 males and 1110 females. Out of the total of 2097 individuals clinically examined in this area, 343 individuals were found to have goitre. The overall prevalence rate was found to be 16.35%. prevalence of goitre was more in paediatric and young subjects. The prevalence rate of goitre of 9.42% was found in males (93 out 987) as compared to 22.52% in females (250 out of 1110). **Conclusion:** Thus we conclude that the prevalence of goiter in the study villages in Balaghat Ranges of Beed District is 16.35%. And according to world health organization definition, we can label the area as endemic for goiter. And we recommend that Public health department should carry out an extensive survey in the whole region to confirm the endemic and take the appropriate measures to control.

Keywords: goiter, Prevalence, Beed district.

*Address for Correspondence:

Dr. N S Inamdar, Associate Professor, Department of Community Medicine, MNR Medical College, Sangareddy Medak Dist. Telangana, INDIA.

Email: adirlep@rediffmail.com

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INTRODUCTION

Goitre is reported from almost every country in the world, with varying intensity few countries appear to be entirely free from it¹. Most notorious goitre centres of the world are located in high mountain regions-in alpine valleys, in the Pyrenees, on the slopes of the Himalayas, and along

the cordillera of the Andes. It is also known to occur in comparatively low lying areas and even at sea level. For example it is seen around the great lakes basin between Canada and U.S.A., in the plains of Lombardy. In the ice-excoriated parts of Finland and in the low-lying Holland. The number of goitrous people in the world is not known. But approximately the total probably is not far short of 200 million. Although the geographical distribution of goiter has not apparently altered during last 100 years². Endemic goitre and endemic cretinism are widely prevalent in the Indian sub-continent. The world's most intense endemic belt runs along the slopes, foothills and adjacent plains to the south of the Himalayan extending over 2,400 kms from Kashmir in the west to the Naga Hills in the east. The Himalayan endemic belt involves the northern states of Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Utter Pradesh, Bihar, West Bengal, Sikkim, Assam, Mizoram. Meghalaya. Tripura,

Manipur. Nagaland and Arunachal Pradesh³. In Maharashtra the goitre has been reported in the regions of Sahyadri-at Mahabaleshwar area, in Satpura ranges in Dhule district from the city of Mumbai and in the districts of Aurangabad, Pune, Wardha, Buldhana, Amravati and Jalna. In the present study we tried to find the prevalence of goitre in Malewadi area of Balaghat ranges, which is not an endemic area as per the government records but more cases has been diagnosed in this area.

AIMS AND OBJECTIVES

To study the Prevalence of goitre in Balaghat ranges of Beed District.

MATERIAL AND METHOD

The present study was carried out in Malewadi area. It is located in Parai Vajinath, which is the field practice area of Rural Health Training Centre of Swami Ramanand Teerth Rural Medical college, Ambajogai, Dist. Beed. The malewade village is at a distance of 6km south east side of Parli Vajinath and Dattawadi is 5km south east of Malewade. Malewade Tanda is at a distance of 1 km. from Malewade and is situated on its west side. Mandva village is at a distance of 2 km north east wards of Malewade and 2 km north of Dattawadi. All these study villages are in the hilly area of Balaghat ranges of south east side. These villages are situated on the slopes of the hills. Malewadi and Dattawadi get their water supply from the rivulets flowing between these hills. Mandva village gets water from the same rivulet 2kms downwards. Malewadi tanda gets its water supply from the stored water in the dam at the other side of the hill on another river, chandapur.dam. As such this area is about 450 to 600 meter above the mean sea level⁴. It was decided to examine the whole population of the study villages i.e. Malewadi, Malewadi Tanda, Dattawadi and Mandva. It was decided to do the house survey to estimate the total population of study village and to examine simultaneously all persons clinically for the present of goitre and its consequences, as well grading the goitre. As it was decided to cover up the whole population under the study at least 4 visits were paid to each family to examine uncovered population. For the cases of hypothyroidism, clinical signs such as pallor, puffiness of face, coarse and thickened skin, relaxation of tendon jerks, sluggishness and lethargy and myxoedema were being looked. Examination of whole population was carried out in person in all study villages. Village health guides assisted for communication with families. Group meeting with local sarpanch, police patil, panchayat membres and prominent villagers explained the purpose of study on ‘galganda’ and their co-operation was sought. All the houses were numbered serially and visited

accordingly to be sure not to miss any house. The inhabitants present were examined clinically in the full day light and in standing position in morning hours only. Clinical examination was done for presence of goitre and due attention was paid not to miss the following.

1. Consistency of thyroid
2. Presence of nodule
3. Feable mindness
4. Deaf mutism
5. Gait defect
6. Squint
7. Stunted growth
8. Evidence of hypothyroidis in adults such as pallor, puffiness of face, coarse and thickened skin, delayed relaxation of tendon jerks, slugginshness, lethargey and myxoedema.
9. Evidence of hyperthyroidism such as exophthalmos, tachycardia tremors, perspiration etc. was looked for.

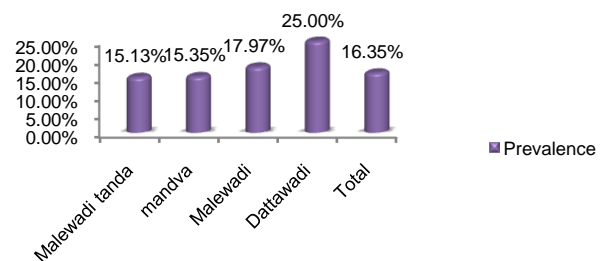
Above information was recorded in pretested proforms. And collected data was analyzed by appropriate statistical methods.

RESULTS

Table 1: Village wise prevalence of goiter cases

Village	Total population	Population Examined	Goiter cases	Prevalence
Malewadi tanda	189	152 (80.42%)	23	15.13%
mandva	1651	1342 (81.28%)	206	15.35%
Malewadi	626	523 (83.54%)	94	17.97%
Dattawadi	90	80 (88.88%)	20	25.00%
Total	2556	2097 (82.04%)	343	16.35%

Village wise prevalence of goiter cases



The study villages in Malewadi area comprised of Malewadi, Dattawadi, Malewadi Tanda and Mandva. A total population of 2097 was covered in this study, which was 82.04% of the actual population of the area (2556). The examined population contained 987 males and 1110

females. Out of the total of 2097 individuals clinically examined in this area, 343 individuals were found to have goitre. The overall prevalence rate was found to be 16.35%. The largest village under the survey was Mandva having a population of 1651 out of which 1342 individuals were examined for goitre. The prevalence rate for goitre was found to be 15.35% (206 out of 1342). Smallest village in the study was Dattawadi, having a population of 90 out of which 80 were examined giving a prevalence rate of goitre of 25%.

Table 2: Agewise distribution of goiter cases

Age group	Population examined	Goiter cases	Agewise prevalence
*0-5	339	16	4.71%
5-10	252	76	30.15%
10-15	212	81	38.20%
15-20	167	50	29.94%
20-25	180	37	20.55%
25-30	147	27	18.36%
30-35	110	19	17.27%
35-40	99	15	15.15%
40-45	79	9	11.30%
45-50	84	6	7.14%
50-55	78	4	5.12%
55+	350	3	0.85%
Total	2097	343	16.35%

*No case of goitre is seen in the age group below 3 year.

It was seen that prevalence of goitre was more in paediatric and young subjects.

Table 3: Sexwise distribution of goiter cases

Age group	Male			Female		
	Population examined	Goiter cases	%	Population examined	Goiter cases	%
0-5	158	8	5.06	181	8	4.41
5-10	118	33	27.69	134	43	32.08
10-15	97	26	26.80	115	55	47.82
15-20	60	8	13.33	107	42	39.25
20-25	93	7	7.52	87	30	34.48
25-30	66	4	6.06	81	23	28.39
30-35	41	2	4.87	69	17	24.63
35-40	47	3	6.38	52	12	23.07
40-45	-	-	-	53	9	16.98
45-50	54	1	1.85	30	5	16.66
50-55	33	1	3.03	45	3	6.66
>55	194	-	-	146	3	1.92
Total	987	93(9.42%)		1110	250 (22.52%)	

In the study villages, 987 were males and 1110 were females. The prevalence rate of goitre of 9.42% was found in males (93 out of 987) as compared to 22.52% in females (250 out of 1110). The higher prevalence in females as compared to males was found to be statistically highly significant ($\chi^2=64.69$, $p<0.001$), indicating the definite correlation between sex and goitre condition. Females are affected more as compared to males.

DISCUSSION

In the present study we studied Malewadi, Dattawadi, Malewadi Tanda, and Mandva villages. Out of the total 2556 population in these areas we covered a total population of 2097 peoples (82.04%). The examined population contained 987 males and 1110 females. In spite of repeated visits, the whole population of the area could not be examined for the presence of goitre-problem. The people use to leave their house early in the morning to work in agriculture fields. It was seen that out of the

total of 2097 individuals clinically examined in this area, 343 individuals were found to have goitre. Thus the prevalence rate was found to be 16.35%. According to world health organization definition, a geographical region is said to be endemic, if more than 10% of the population show clinical sign of generalised or localised thyroid hypertrophy⁵. Thus the Malewadi area in Beed dist. of Maharashtra state is found to be endemic for goitre cases, as the overall prevalence rate of goitre in this area is found to be 16.35% which is more than 10% of the total population. The prevalence rate ranged from 15.13%, found in the vilages malewadi tanda, to 25% in the village Dattawadi. The prevalence rate of malewadi and dattawadi, taken together because, these two villages are situated on the same plane at the slops of hills and compared with the prevalence rate of goitre in the villages mandva, it is seen that prevalence rate is higher in villages malewadi and dattwadi combined (18.90%) is higher than prevalence rate of goitre in the villages mandva (15.35%). The difference is found to be

statistically significant ($\chi^2_1=3.92$; $p<0.05$). Taking into consideration geographical situation of these villages, it was seen that Dattawadi and Malewadi were at a higher level (about 100 meters) on the slop of the hills than the villages Mandva, which is situated at a comparatively plane level. This indicates that more is the prevalence rate of goitre, when more in the height of the place from mean sea level. The Mandva village gets water supply from the same rivulets, from which Malewadi and Dattawadi get water supply. Above finding was in agreement with the finding of the study carried out at Aurangabad by Sathe P.V *et al*⁶. Where it was found that 10 villages having the height more than 667 meters, have prevalence of goitre of 53%, which was more than the prevalence of goitre at the 6 villages situated at a height of 667 meters or loss (38.1%). The reason for the difference of prevalence rate of goitre in the villages Malewadi and Dattawadi combined and Mandva, probably may be due to withering of the soil of the villages situated at a withering level on the slopes of hills, by the rain fall, washing away the iodine content of superficial layers of soil and this needs to be investigated further. Malewadi tanda was having the prevalence rate of goitre of 15.13 % although it was geographically situated about 100 meters higher than Malewadi and Dattawadi. The explanation of lower prevalence of goitre in these villages is that, the villages from Malewadi tanda use water from Chandapur dam, which nearer to them and is constructed at the planes. It was observed that there were total 987 males and 1110 females in the study. The prevalence rate of goitre of 9.42% was found in males (93 out of 987) as compared to 22.52% in females (250 out of 1110). The higher prevalence in females as compared to males was found to be statistically highly significant ($\chi^2_1=64.69$, $p<0.001$), indicating the definite correlation between sex and goitre condition. Females are affects more as compared to males. This finding was in agreement with the findings of previous studies carried out at mahabaleshwar area by Davidson S *et al*⁷ were there was preponderance of goitre in females as compared to males to the ratio of 6:1. A study carried out in sub-himalayan region by Sengupta SK *et al*⁸, where it was found that there was also high prevalence in females. Dudani, T.G *et al*⁹ (23.69%) and Pattiwar, S.V *et al*¹⁰ (24.1%) also observed higher prevalence in female. But it is not clear why females are more susceptible than males. Such factors as the increased renal iodide clearance and the resultant decreased plasma inorganic iodide (PII) levels may explain goitre enlargement occurring during pregnancy.

Furthermore, adult males may travel outside the endemic areas more often and in doing so may consume food with more iodine then that found in their village¹¹. It is also due to the influence of folliculin secreted by girls during puberty there is increase in size of the thyroid in girls as compared to boys of the same age¹².

CONCLUSION

Thus we conclude that the prevalence of goiter in the study villages in Balaghat Ranges of Beed District is 16.35%. And according to world health organization definition, we can label the area as endemic for goiter. And we recommend that Public health department should carry out a extensive survey in the whole region to confirm the endemic and take the appropriate measures to control.

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