

A study of Knowledge and Attitude about Leprosy among Medical Students

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Proper medical education should empower the medical doctors in terms of knowledge of subject and also the attitude to treat the patients with commitment and compassion. These aspects are very important for a disease like leprosy which had/ might have elements of hidden stigma and apathy. With a goal to understand the impact of undergraduate medical teaching this study was done to assess the knowledge, attitude and practices regarding leprosy among undergraduates of a medical college and compare the knowledge between first year and final year students. This was a cross-sectional study done at Rajarajeswari Medical College and Hospital, Bengaluru between January - June 2016. The first and final year students were given a predesigned, pretested structured questionnaire on leprosy. The questionnaire had questions to assess the knowledge and attitude of students towards leprosy patients. The results were analysed using percentage proportions and Z test. This test was answered by 76 final year and 94 first year medical students. Final year students had better knowledge about leprosy compared to their counterparts in the first year. But the necessary knowledge to diagnose, recognize complications and treat leprosy patients properly was found lacking. Only 38.15% (29/76) of final year students were aware of many of the important signs and symptoms to diagnose leprosy. Also, pain in the nerve is to be treated as an emergency in patients of leprosy was correctly recognised by 68.42% (52/76) of final year students, this is serious as more than 30% will fail to diagnose neuritis in time. There was not much difference in the attitude of first and final year students towards leprosy except in their willingness to work in the same environment as leprosy patients. About 96.80% (91/94) of first year students responded that leprosy was curable compared to 96.05% (73/76) of final year students and 56.38% (53/94) of first year students knew that there was a vaccine for leprosy compared to 7.89% (6/76) of final year students. This does not imply that final year students lost that knowledge but it means that these are different groups starting with different levels of knowledge. It will be desirable to study knowledge improvement or otherwise in the same group.

Key Words : leprosy, knowledge, attitude, undergraduate medical students

Introduction

Leprosy is a chronic communicable disease caused by *Mycobacterium leprae* and is believed to be mostly acquired by droplet infection. The

disease has a potential for progressive and permanent deformities and is associated with social stigma and discrimination (Stephen and Selvaraj 2014 and Shukla et al 2015).

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The prevalence of leprosy in India has fallen steeply from 57.6 per 10,000 in March, 1981 to 2.44 per 10,000 in March, 2004 (Grewal et al 2013). India has achieved elimination of leprosy as a public health problem in December 2005 where in the prevalence is less than 1 per 10,000. Presently, as of April 1, 2014 the prevalence was 0.68 per 10,000 (Kumar 2015). This is not uniform throughout the country and some areas even now have a prevalence of 3-4 cases per 10,000 population (Shukla et al 2015). Annual New Case Detection Rate (ANCDR) was 9.98 per 100,000 populations in 2013-14 (Kumar 2015). The burden of leprosy is still high even though India has entered a post elimination era (Singal and Sonthalia 2013).

Active case detection has taken a backseat in post elimination era and leprosy services are integrated with general health care system (Seshadri et al 2014). In a way, this has helped by making treatment more accessible and it has reduced stigma of the disease. But, leprosy cases are sometimes missed or are wrongly diagnosed by primary health centre staff. Also leprosy is a great mimicker and occasionally confuses even the experienced leprologists (Kumar 2015).

“Attainment of leprosy free status for the people of India” is the vision of National Leprosy Eradication Programme of India (Vision of NLEP). In order to attain this, medical students should have knowledge about the diagnosis and treatment of leprosy. Medical students who will soon be doctors hold the promise of providing general health care services to the community in the near future.

The present study was done to assess the knowledge, attitude and practices regarding leprosy among undergraduates of our medical college and to try to compare the knowledge between students of first year and final year after they have fairly completed their training in medicine.

This study will help us to know how much we are educating our medical students regarding leprosy and find out the lacunae in their learning.

Materials and Methods

This cross sectional study was done at Raja Rajeswari Medical College and Hospital, Bengaluru during January to June 2016. The participants of the study were medical students studying in the first year and final year and willing to participate in the study.

All the students were given a pre-designed, pretested structured questionnaire to complete. The questionnaire was designed to contain questions to assess the knowledge and attitude of the students towards patients affected with leprosy. It contained 25 questions, 14 multiple choice questions and 11 'yes or no' questions. (Table 1). Students were instructed to mark one correct answer. The time limit of the test was 15 minutes. Ethical approval of the study was taken from the Institutional Ethics Committee.

Statistical analysis : The results were analysed using percentage proportions and Z-test. The observed difference was considered significant if p was <0.05 .

Results

The test was answered by 76 final year medical students and 94 first year medical students. Table 2 gives the results along with the percentage proportions, Z score and p value. All of the final year medical students knew that leprosy was a bacterial disease whereas 74% (70/94) of the first year students gave the correct response and the difference was statistically significant. The typical feature of loss of sensation over the affected area was recognised by 93% (71/76) of final year students whereas 52% (49/94) of first years gave a correct response.

The nerve commonly affected in leprosy, most severe form of leprosy, drugs used in leprosy,

Table 1 : List of questions asked

1. Leprosy is a disease due to:
 - a) Bacteria
 - b) Curse of god
 - c) Virus
 - d) Polluted water
2. Synonym of Leprosy is:
 - a) Humprey's disease
 - b) Hartmann's disease
 - c) Hansen's disease
 - d) Harry's disease
3. Which is the typical feature associated with skin patches caused due to Leprosy?
 - a) Loss of sensation over the affected skin.
 - b) Skin over affected areas appears very dark.
 - c) Extreme pain over affected skin.
 - d) None.
4. Which nerve is commonly affected in Leprosy?
 - a) Radial
 - b) Popliteal
 - c) Ulnar
 - d) Posterior tibial
5. Which is the most severe form of Leprosy?
 - a) Tuberculoid
 - b) Midborderline
 - c) Lepromatous
 - d) Borderline
6. Which of these drugs is not included in MDT (multidrug therapy) used in treatment of Leprosy?
 - a) Rifampicin
 - b) Dapsone
 - c) Clofazamine
 - d) INH (Isoniazid).
7. The country with the biggest Leprosy problem.
 - a) India
 - b) China
 - c) Brazil
 - d) U.S
8. What is NOT the sign or symptom of Leprosy?
 - a) Ulceration and deformity
 - b) Swelling of feet
 - c) Tingling of hands and feet
 - d) Hyperpigmentation of face
9. Leprosy spreads mainly through
 - a) Droplet infection
 - b) Fomites
 - c) Contact
 - d) Water
10. What is the duration of treatment of paucibacillary Leprosy?
 - a) 6 months
 - b) 9 months
 - c) 12 months
 - d) 15 months
11. What is the duration of treatment of multibacillary Leprosy?
 - a) 6 months
 - b) 9 months
 - c) 12 months
 - d) 15 months
12. Which patient needs immediate medical attention?
 - a) Patient with sudden onset hair fall
 - b) Patient with pain in the nerve
 - c) Patient with itching
 - d) Patient with burning in the feet
13. What is the laboratory test done in a patient suspected of Leprosy?
 - a) Peripheral smear
 - b) Slit skin smear
 - c) Culture and sensitivity
 - d) KOH examination
14. What is the cause of deformity in Leprosy?
 - a) Damage of heart
 - b) Damage of nerve
 - c) Damage of colon
 - d) Damage of lungs
15. Should Leprosy patient be isolated during treatment?
 - a. Yes
 - b) No
16. Is Leprosy treatment available free of cost to the patients in India?
 - a. Yes
 - b) No
17. Can a person not having Leprosy marry someone with Leprosy? (On or completed treatment)
 - a. Yes
 - b) No
18. Can others touch Leprosy patients?
 - a. Yes
 - b) No
19. Are you willing to treat a patient suffering from Leprosy?
 - a. Yes
 - b) No

20. Would you work together in the same environment with patients of Leprosy (On or completed treatment).
a. Yes b) No
21. Is Leprosy a highly infectious disease?
a. Yes b) No
22. Is there any vaccine against Leprosy?
a. Yes b) No
23. Is Leprosy a public health problem in India?
a. Yes b) No

Table 2 : Assessment of knowledge, attitude about leprosy among the study population

	Final year students		First year students		Z score	P value
	Correct response (n=76)	% proportion	Correct response (n=94)	% proportion		
Q1	76	100	70	74.46	4.75	<0.01
Q2	75	98.68	59	62.76	5.69	<0.01
Q3	71	93.42	49	52.12	5.87	<0.01
Q4	51	67.10	30	31.91	4.56	<0.01
Q5	68	89.47	52	55.31	4.85	<0.01
Q6	53	69.73	36	38.29	4.08	<0.01
Q7	56	73.68	58	61.07	1.65	<0.05
Q8	29	38.15	28	29.78	1.14	>0.05
Q9	30	39.47	29	38.15	1.17	>0.05
Q10	56	73.68	22	23.40	6.54	<0.01
Q11	49	64.47	37	39.36	3.25	<0.01
Q12	52	68.42	44	46.80	2.82	<0.01
Q13	46	60.52	51	54.25	0.82	>0.05
Q14	75	98.68	85	90.42	2.27	<0.05
Q15	45	59.21	35	37.23	2.85	<0.01
Q16	70	92.10	53	56.38	5.17	<0.01
Q17	60	78.94	67	71.27	1.14	>0.05
Q18	51	67.10	58	61.70	0.73	>0.05
Q19	73	96.05	86	91.48	1.20	>0.05
Q20	72	94.73	74	78.72	2.98	<0.01
Q21	43	56.57	40	42.55	1.81	<0.05
Q22	6	7.89	53	56.38	-6.60	<0.01
Q23	66	86.84	69	73.40	2.15	<0.05
Q24	72	94.73	70	74.46	3.54	<0.01
Q25	73	96.05	91	96.80	-0.26	>0.05

duration of treatment of leprosy in paucibacillary and multibacillary leprosy were answered correctly by 67.1% (51/76), 89.47% (68/76), 69.73% (53/76), 73.68% (56/76) and 64.47% (49/76) of final year students respectively and 31.91% (30/94), 55.31% (52/94), 38.29% (36/94), 23.40% (22/94) and 39.36% (37/94), of first year students respectively. The difference in the response between first and final year students was statistically significant. Pain in the nerve is to be treated as an emergency in patients of leprosy was correctly recognised by 68.42% (52/76) of final year students when compared to 46.80% (44/94), of first year students. The cause of deformity in leprosy was recognised correctly by 98.68% (75/76) of final year students and 90.42% (85/94), of first year students and the difference in the response was statistically significant.

Statistically significant difference in response between first and final year students was not seen in the response to the questions of signs and symptoms of leprosy, spread of leprosy, and laboratory tests done in a case suspected of leprosy.

There were five questions to assess the attitude of the students towards leprosy. About 59.21% (45/76) of final year students and 37.23% (35/94), of first year students felt that leprosy patients need not be isolated during treatment. Also, 96.05% (73/76) of final year students responded that they are willing to treat patients with leprosy and 94.73% (72/76) of them were willing to work in the same environment as leprosy patients. The response in first years was 91.48% (86/94), and 78.72% (74/94), respectively. Marriage of a patient on treatment or completed treatment with leprosy was acceptable in 78.94% (60/76) of final year students compared to 71.27% (67/94), of first year students. Only 67.10% (51/76) of final year students felt that others can touch leprosy

patients compared to 61.70% (58/94), of first year students. Statistically significant difference in responses between first and final year students was seen for two of the above questions.

India is a country with the biggest leprosy problem and treatment is given free of cost to the people of India. About 92.1% (70/76) of final year students knew that treatment is available free of cost to patients of leprosy in India compared to 56.38% (53/94), of first year students and only 56.57% (43/76) of final years and 42.55% (40/94), of first years responded that leprosy was not a highly infectious disease. Statistically significant difference in responses between first and final year students was seen for the above questions.

About 96.80% (91/94), of first year students responded that leprosy was curable compared to 96.05% (73/76) of final year students and 56.38% (53/94), of first year students knew that there was a vaccine for leprosy compared to 7.89% (6/76) of final year students. Also, 94.73% (72/76) and 86.84% (66/76) of first and final year students respectively responded that not all patients end up in deformities and leprosy is a public health problem.

Discussion

This study was done to know whether the knowledge, attitude and practices of our medical students about leprosy, when they are completing their training are fairly adequate. This will help us to know what needs to be changed while deciding the curriculum of teaching medical students. This is a necessity if we have to achieve our vision of "Attainment of leprosy free status for the people of India." (NLEP-National Leprosy Eradication Programme).

In our study, all the final year students and 74.46% (/94) of first year students knew that leprosy is an infection caused by bacteria. In a study by Kar et al (2010) in Assam in Kamrup district all the medical

officers in PHC's knew about the cause of leprosy and 90% of the health supervisors also were aware of it. Both first year students and final year students had poor knowledge about the spread of leprosy. In contrast, in the study by Giri et al (2011) 80% of the interns were aware of the mode of spread and in the study by Kar et al (2010) all the doctors knew about the spread of leprosy.

Although 93.42% (71/76) of final year students were aware that loss of sensation over the affected skin occurs in leprosy and 98.68% (75/76) knew about the cause of deformity in leprosy only 38.15% (29/76) were aware of other important signs and symptoms to recognise leprosy. Their knowledge was not significantly better than first year students. In a study by Giri et al (2011) 50% of interns and 40% of undergraduates were unaware of the cardinal signs of the disease. In contrast in a study of health workers in Assam, all of the doctors working in PHC, 92.5% of health supervisors had a good knowledge about diagnosis and 90% of these doctors and 80% of supervisors had attended training programs in leprosy (Kar et al 2010). Also, in the study by Prakash Kumar et al (2013) physiotherapy students showed a definite improvement in knowledge and attitude after one week of intensive training in leprosy. This suggests that further specific training in leprosy definitely improves knowledge about leprosy. It will be necessary to follow same model for medical students passing out from different medical college with less than adequate knowledge especially about emergency situations like neuritis in leprosy.

To know the leprosy scenario in India few questions were included. About 86.84% (66/76) of final year students knew that leprosy is a public health problem in India, 92.10% (70/76) knew that treatment is available free of cost to leprosy patients and 73.68% (56/76) recognised that the

country with the biggest leprosy problem is India. Their knowledge was significantly better than the first year students. In a study by Jain et al (2016) in dental students as much as 70.35 dental students did not know the existence of national leprosy eradication programme. The public health related knowledge of our final year students were comparatively better.

Only 60.52% (46/76) of final year students knew about the slit skin smear compared to 54.25% (51/94), of first year students. The final year students' knowledge about the laboratory test for leprosy was not better than the first year students.

Only 68.42% (52/76) of final year students were able to recognise that patient having neuritis should be treated immediately. In a study in Ethiopia by Abeje et al (2016) only 17% of the health workers were able to correctly list signs and symptoms of reaction and 97% did not know how to manage leprosy reactions.

There was not much difference in the attitude of first and final year students towards leprosy except in their willingness to work in the same environment as leprosy patients. This does not imply that final year students lost that knowledge but it means that these are different groups. Ideally knowledge improvement or otherwise should be assessed in the same group. It may also be desirable to improve the questionnaire keeping in view the emerging needs of programme.

In the study by Ranganadha Rao et al (2007), 92.75 medical officers exhibited sympathy and helpful attitude towards leprosy patients. In the study by Jain et al (2016) there was statistically significant association between leprosy related attitude and years of training in dental students.

Conclusions and future perspective

Except for some important issues like vaccine against, final year students definitely had a better

overall knowledge about leprosy compared to their counterparts in the first year. The knowledge and attitude of final year medical students is in many aspects better than the first year students in our study. But the necessary knowledge to diagnose, recognise complications like neuritis and treat leprosy patients is inadequate. With integration of leprosy services to general health services, it is necessary that these students who would shortly join the medical fraternity should know more about leprosy.

The change in attitude of medical students towards leprosy patients at the end of their medical training is more or less the same. There are still a few misconceptions in the minds of even the final year students regarding the infectiousness and spread of the disease. This can change if they gain good knowledge about leprosy.

If "Attainment of leprosy free status for the people of India" and in a broader sense, leprosy free status for the people of the world is to be attained we need to have primary physicians knowledgeable in leprosy. It may be imperative to include few more hours of training in leprosy to the curriculum of medical students.

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