

Original Research Article

Knowledge, attitude and practice of nutritional counselling for tuberculosis patients amongst doctors practising in a tertiary care teaching hospital

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ABSTRACT

Background: Knowing the knowledge of resident doctors in a tertiary care teaching hospital along with their attitude regarding counselling the tuberculosis patients and their way of implementing their knowledge in their practices while treating the tuberculosis patients will not only lead to a healthy base for the core of the society but also keep the flow of knowledge regarding nutrition from doctors to tuberculosis patients and their relatives so as the peripheral aspect of the society too will get strengthened.

Methods: A well-structured questionnaire was distributed among 147 resident doctors working in a tertiary care teaching hospital.

Results: Overall it was found that there is slight and significant increase in the knowledge aspect among third year resident doctors. While in practices, first and second year resident doctors were contributing more than third year doctors.

Conclusions: Overall all the resident doctors were knowing the importance of having adequate and balanced diet in the management of tuberculosis and also were aware about its role in prevention of tuberculosis.

Keywords: Knowledge, Attitude, Practice, Tuberculosis, Nutrition

INTRODUCTION

Tuberculosis (TB) is the main cause of concern in many developing countries like India, Pakistan, Bangladesh and certain African territorial countries where it has many contributory factors for its favourable spread like lack of education, poor sanitation practices, overcrowding, and undernutrition.

Out of which nutrition is the only and key factor which is predominantly modifiable i.e. with the help of Government's national run programs like NTEP (National TB elimination program) and directly observed treatments (DOTS) for TB, we can achieve the adequate and satisfactory nutrition for the patients, which will not only

cause the early recovery of them but also can help in controlling the severity of illness in TB patients and reducing the chances of development of multi-drug resistant tuberculosis (MDR-TB) and extensively drug resistance tuberculosis (XDR-TB). Under nutrition can impair cell mediated immunity and increase the severity of TB disease.¹

There could be many parameters to assess the nutritional parameters in an individual. Like in new-born we use mid-arm circumference, while in adult along with that body fat percentages and other measures can also be undertaken. Among tuberculin skin test positive U. S. navy recruits, the risk of tuberculosis was nearly four-fold higher among men who were at least 10% underweight at baseline than in men who were at least 10% overweight.²

Need of the study

We have to know another important and vital role of nutrition in TB, which is having a preventive role. In many studies done previously, among various sectors of population (doctors, health care workers, and general population) we have found that nutrition plays a key role in the management of TB and thus improves the prognosis of the disease. But here we also need to know if adequate nutrition can prevent the occurrence of the disease among those who are exposed to the infection in moderate to severe grade.

Previously similar study was conducted among nursing staff to assess these parameters among them and it was successfully carried out with many significant findings, and hence this study was planned to evaluate these parameters among the resident workers which forms another yet strong pillar of health care system in hospital set up, as resident doctors have to spend most of their academic time in accompanying the patient either in wards or OPDs.

So, it becomes a vital view, to evaluate these parameters and know if they are having adequate nutrition related knowledge and corresponding attitude so that they can have an impact of same in their practices while treating the tuberculosis patients. This will not only help them to achieve a healthy lifestyle for themselves but also, they can pass this knowledge to the patients so that they can also have an improved quality of life and thus better will be the outcome of the disease, thus reducing the mortality and morbidity of tuberculosis.

Since a person with infectious TB is estimated to infect about 20 people in his/her lifetime, and health care workers, preferably resident doctors are more at a risk of contracting it, as they are exposed to the TB patients while working in wards and outpatient departments (OPDs).³

So, by keeping this aspect in view, we should train not only resident doctors but also other health care workers and also relatives of the infected patients, so that they can avoid the infection by practicing the preventive measures as mentioned above out of which having adequate and nutritious diet is one of the vital factor.

In an Indian study, 163 patients with tuberculosis were treated either in a sanatorium with a well-balanced diet or at home on a markedly poor diet. The overall treatment response was similar in both groups, however, those receiving better nutrition tended to show more rapid clearance of bacteria and radiographic changes in addition to greater weight gain.⁴

Also a similar study but with different aspect shows that patients with mixed dietary habit (vegetarian and non-vegetarian) had better results as compared to those patients with only vegetarian diet.

METHODS

Study design

This is a cross-sectional, observational study which was carried out in resident doctors from Sassoon general hospital, Pune.

Sample size calculation

As this is a quantitative analysis, we use Delphi method to calculate the sample size. In this technique, we first take a certain and fixed sample size which depends upon certain factors. As in this study, the included sample size was decided upon the total number of presently working resident doctors in the hospital.

And upon analyzing the data, at a point we get to know that there is repetition of responses, then we stop further enrolment of subjects. And the in-hand number is considered as sample size of the study.

Inclusion criteria

Residents included were from a tertiary care teaching hospital in Pune, residents who have previously worked with TB wards or OPDs irrespective of duration.

Exclusion criteria

Residents who are not willing to get enrolled in this study, residents who had not worked previously with TB wards or OPDs, residents from whom the answers of given questionnaire were not retrieved.

Study participants

A total number of 150 resident doctors from all the 3 academic years from various departments were included in the study. They were given a structured-questionnaire to evaluate to their knowledge, to assess their attitude and knowing their practices while treating TB patients. Out of which, 147 forms were successfully retrieved and evaluated.

Data collection

A well-structured questionnaire was framed using references of various studies and our previously done study among nursing staff.⁵

The knowledge assessing questions included information regarding daily calorie requirements among various individuals including among those who are suffering from TB. While practical attitude was assessed by knowing if they are interested in counselling the TB patients and also it was acknowledged that if they get appropriate time for doing so.

The study was conducted from March 2020 to May 2020 and further it was analyzed.

Statistical analysis

We used descriptive statistics to assess the proportions/central tendency of residents those have different work experience with TB patients. We compared categorical variables using the Fisher's exact test. All p values were two-sided with statistical significance evaluated at the 0.05 alpha level (if p value <0.05, there is significance difference among group).

The results were analyzed in the form of percentages, mean and cumulative percentages. The results were expressed in the form of tables, bar diagrams and line diagram to show the variations among the responses of subjects.

RESULTS

Demographic results

Out of 147 respondents, 45% (66) were females while 55% (81) were male residents. We got to interact with 37 residents from 1st year, 86 residents from 2nd year and 24 residents from 3rd year.

The reason for variance in the available number of residents was that the first and second-year resident doctors are more actively working in the ward and hence were easily accessible for the study whereas third year resident doctors were busier with either their academic work or procedural work like emergency rooms and operation theatres.

Knowledge results

As we get to assess the knowledge of all the three-year resident doctors, we found that, there was a gradual and significant increase in the knowledge aspect among residents with the increase in their working experience.

75% (18) of residents from third year had exact knowledge of daily calorie requirement, while 48% (42) from second year resident doctors were correctly aware about it, however only 35% (13) of first year residents were knowing the same, rest either didn't answer the question nor mentioned a wrong figure. The level of significance was 0.009 (p<0.05) which is statistically significant. All respondent residents i.e. 100% (147) subjects were well aware that there is an increased need in the nutrition level among tuberculosis patients while being treated. A study shows that there is a significant and substantial impression of educational background on the knowledge regarding nutritional importance in tuberculosis patients and so certain other factors like economic, and biological (subjective factor). TB trends are influenced by control programs as well as by biological, social and economic factors.⁶

In another aspect, as given in Figure 1, where we tried to evaluate their knowledge, if the TB patients are aware about their current health status, we found a varied result as in 92% (22) of third year resident doctors answered it as "no" while rest 8% marked it as "yes". 93% (80) from second year resident doctors answered it as "no" while rest 7% said it as "yes" while 70% (26) first year resident doctors answered it as "no" while rest 30% had "yes" as their answers. On evaluating these responses statistically, we got a significant level of p value i.e. 0.003 (p<0.05), which indicated that as the experience increases the knowledge regarding assessing the TB patients improves.

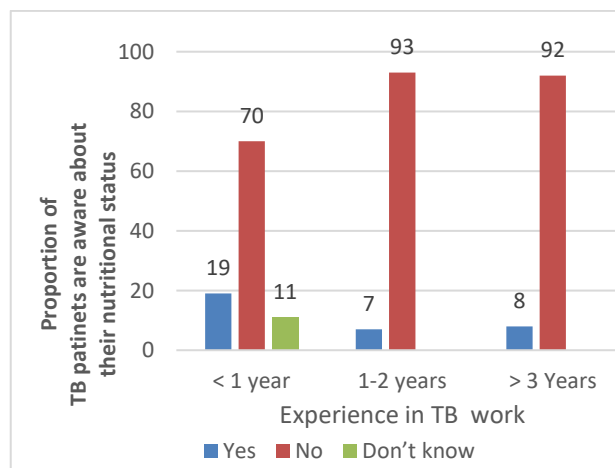


Figure 1: Knowledge about nutritional status.

All residents from all three years had a positive aspect towards having nutritional awareness among the tuberculosis patients. When compared this point to our previously done study among nursing staff, where we found that there was a breach in the knowledge as well as attitude among experienced and unexperienced nursing staff, and it showed that with the increase in experience there is an improvement in the above-mentioned parameters.

While trying to assess their knowledge regarding if they know any dietary recommendations which is exclusive for tuberculosis patients only 14% (5) first year residents could answer correctly, along with 27% (23) from second year and 79% (19) from third year, which on analysis shows that it has a significant difference with a p value of <0.001 (p<0.05), this shows that there is lack of basic academic knowledge of dietary awareness which is more among first year resident doctors.

This needs to be evaluated and modified accordingly, as we see that more of first year residents are working with tuberculosis patients in the ward, so they should be made aware about these dietary guidelines not only for the tuberculosis patients but also for themselves. This will build a confidence in them to counsel the tuberculosis patients regarding adequate nutrition and will also have a positive impact in their own practices of having proper diet so that there will be a check in the spread of the disease.

Also, a valid and concrete base can be found on this that there should be inclusion of relevant academic studies during their internship which would help them to gain the knowledge regarding the nutritional importance of nutrition in various health conditions (including TB, diabetes mellitus, malnutrition, and obesity). Also, timely seminars can be arranged which will improve their knowledge through audio-visual cascade and enhance their working skills. So that they can effectively and confidently ask their patients to have proper nutrition as far as TB is considered.

Attitude results

Assessment of knowledge revealed that there is no much difference as per this particular aspect is considered among all these 3-year resident doctors. The reason could be all belonging to same educational background (everyone completed their under-graduation as MBBS).

While assessing the attitude of resident doctors, 100% (27) from third year had an attitude that undernutrition is a potent risk factor for contracting tuberculosis infection while 72% (62) from second year and 73% (24) from first year residents had same opinion which on analysis showed the significant difference of 0.004 (p<0.05).

Also, their attitude towards having breakfast and other regular meals before commencing routine work was positive and an improved trend with increase in their working experience was seen.

As mentioned in Figure 2, when attitude regarding dietary effect in disease outcome was analyzed, a significant difference was seen among all the three study groups as 96% (27) third year residents had an attitude that mixed diet (veg and non-veg) would have a positive impact on the disease outcome while 88% (76) from second year and 73% (23) from first year had same attitude with significant difference of 0.03 (p<0.05).

Practices results

As described in Figure 3, we tried to assess the practical aspect, in the form whether residents counselled the TB patients, 59% (22) from first year were able to counsel the patients along with 47% (40) of second year residents and 13% (3) of third year residents; however 41% (15) from first year couldn't do it either due to lack of time or interest along with 53% (46) from second year and 87% (21) from third year.

When these findings were estimated statistically, we found that this difference was statistically very significant <0.05 (0.001). Again, it can be concluded that first year resident doctors being more towards patient care i.e. working in wards and OPDs, hence they could counsel the patients more effectively and actively. However, third years resident doctors being more into academics thus they were not active when counselling part was taken into

consideration. Thus, there is a need for increase in the knowledge levels regarding nutritional role in tuberculosis management in first year resident doctors, which will be highly yielding scenario as they have ample time to spend with patients.

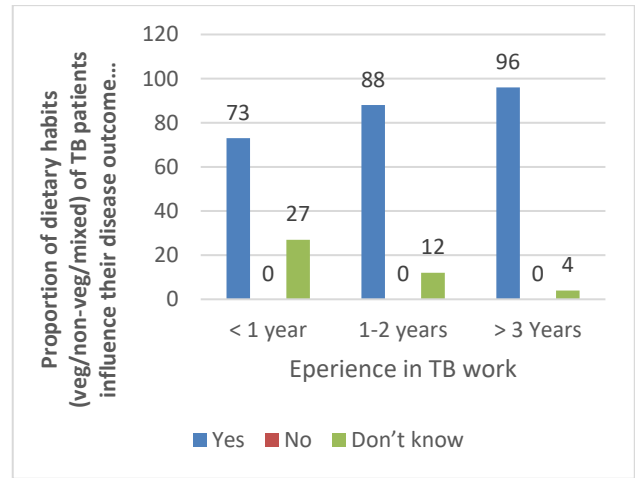


Figure 2: Knowledge about dietary habit with their outcome.

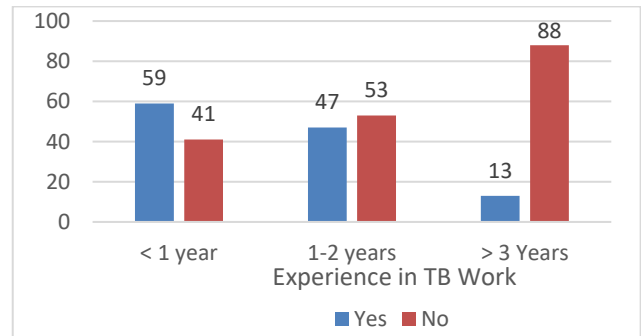


Figure 3: Proportion of counselled patients' for nutrition.

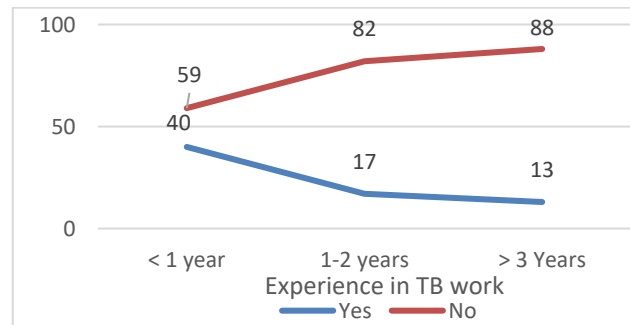


Figure 4: Proportion of get sufficient time to counsel TB patients.

The varied results which were due to unavailability of time as we see on response to the question if they get enough time to counsel the TB patients. 40% (15) of first year residents got time for counselling while 17% (15) from second year and 8% (2) from third year.

DISCUSSION

As we look out the proportionate responses from residents, we could get as much as 37 from first year, 86 were from second year and 24 from third year which concludes that first and third year residents have shortage of time due to either heavy work load or other academic works such as thesis completion, preparation for final year examination, etc. as compared to second year residents.

In knowledge perspective, we could notice that 75% from third year residents had exact knowledge of increased calorie requirement in tuberculosis patients along with 48% from second year and 35% from first year residents, with a p value of 0.009 ($p < 0.05$) which is statistically significant. From this it can be concluded that increase in experience and exposure to tuberculosis patients increases the *must-to-know* knowledge in residents also this criterion satisfies the next knowledge assessing question if residents think that tuberculosis patients are aware about their nutritional status. 70% from first year residents think that tuberculosis patients are not aware about their nutritional status similarly 93% from second year and 91% from first year residents share similar review. Which on comparing statistically shows a p value of 0.003 (< 0.05) and thus is significant.

All the residents have a positive attitude regarding having nutritional awareness in tuberculosis patients, which when compared to previously done study which was carried out among health care workers found that this study has more positive attitude of resident doctors when compared to health care workers.

With the increase in working experience, residents have improved their knowledge of knowing dietary recommendations in detailed with knowledge of many organizations providing services including medicines, high protein diet and other stuffs which will improve quality of life in TB patients. However, the trend to counsel the tuberculosis patients was seen in a reversed manner, as first year residents were more involved in counselling the tuberculosis patients as compared to second year and third year residents. This difference was statistically very significant and was due to more of personal interest in dealing the TB patients along with other affecting factors like first year residents got more time to spend in wards and OPDs so that they could counsel the patients more effectively.

96% of residents from third year had a view that mixed diet (vegetarian and non-vegetarian diet) has a positive influence on disease outcome as compared to only vegetarian diet which on comparing with other two study group was statistically significant this was similar result found with a study conducted in London, it was found that Hindu Asians had an increased risk of TB compared with Muslims. Religion had no independent influence after adjustment for vegetarianism (common among Hindu Asians).⁷

There are numerous studies dealing with the effects of different diets on tuberculosis patients, and widely divergent and contradictory claims have been made, whereas we have tried to access the role of same i.e. diet and nutrition among the resident doctors. Here we have also tried to know if there is any history of altered pathophysiology of TB mainly its aetiology like if some of the resident doctor has contracted TB out of undernutrition or if one had sustained then how would have been the progress and outcome of the disease. Also trying to know the contributory factors towards the outcome of the disease which we could have implemented in the further studies for further significance or would have acknowledged the same to the college institute.

Difficulty in interpretation of these studies is influence of other factors on infection, like India, we have many contributory factors like overcrowding, lack of knowledge about adequate nutrition and its practices also there is an ignorance towards the preventive measures of contracting the disease. Among tuberculin skin test positive U. S. navy recruits, the risk of TB was nearly four-fold higher among men who were at least 10% underweight at baseline than in men who were at least 10% overweight.⁸

Experimental studies on rats have shown that animals on high protein diet recovered from the negative nitrogen balance phase following an infection more rapidly than those on low protein diet. Clinical studies have shown that prognosis in case of tuberculosis is decidedly more favorable in subjects with positive nitrogen balance than in those with negative nitrogen balance.⁹ So, if one is keeping the diet high on proteins, so that the metabolism bi-product of such diet will be nitrogen. This will yield higher nitrogen balance in the body and will help in the improvement in the condition of the TB patient.

This is a positive aspect among the TB care, where a simple dietary modification can lead to significant health assurance and can easily be adopted by any infected individual with the help of national programs for tuberculosis. So, it should be made as one of the routine and mandatory things that are to be told while counselling the patients. The changes in lean mass could be an underestimate of the actual improvement in nutritional status, given that feeding initially leads to a loss of extracellular water that accumulates in malnourished individuals, including those with tuberculosis.¹⁰ So we need to undertake this situation on the back of mind, and let the residents do consider this vital fact while assessing them in the follow up visits of tuberculosis patients. This will enable the chances of bias in the assessment of them regarding nutrition.

Limitations

This is a single-centre study, so we got to analyze the data from a single institute only. Had it been, a multi-centre study, results could have been varied and more other issues could have been brought into notice.

The study subjects were included irrespective of the duration of experience in TB wards and OPDs, as experience can have an impact on knowledge factor.

CONCLUSION

Overall all the resident doctors were aware about the nutritional importance in the management of TB. However, a significant increase was seen in all the parameters with the increase in the experience. And also, self-awareness was seen on a higher side among the third-year residents, however active involvement was seen among first 2-year residents.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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