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Study On Health Related Quality Of Life In Tuberculosis Patient Under DOTS

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Abstract:

Objective: To evaluate the Health related quality of life (HRQL) in tuberculosis patient under Directly observed treatment short course (DOTS) by using a HRQL questionnaire SF-36 at 0 week, 4 weeks and 8 weeks.

Method: Consecutive 80 subjects both pulmonary and extra pulmonary cases of tuberculosis (sputum positive and negative) of any age group, diagnosed and put on treatment under DOTS center, Subharti Medical College under Revised National Tuberculosis Control Programme (RNTCP) were included in the study.

Result: Physical Function (PF) at 0 weeks was only 53.31, at 4 weeks it was 65.24 and at 8 weeks it was 79.81. Role Physical (RP) was 23.13, 40.31 and 57.5 at 0, 4 and 8 weeks respectively. Body Pain (BP) was 36.68, 40.68 and 46.16 at 0,4 and 8weeks respectively. General Health (GH) was 38.56, 41.09 and 43.41 at 0, 4 and 8 week respectively. Vitality was 42.38, 49.5 and 57.56 at 0, 4 and 8 weeks respectively. Social Functioning (SF) was 39.2, 44.6 and 51 at 0, 4 and 8 weeks respectively. Role emotional (RE) at 0, 4 and 8 weeks was 29.99, 43.7 and 63.7 respectively. Mental health (MH) scales were 36.5, 39.02 and 43.36 at 0, 4 and 8weeks respectively.

Conclusion: TB disease has negative and encompassing impact on active TB patients self-perceived health status in physical psychological and social aspects. It appears that physical health improved more quickly than mental health which tends to persist for longer time.

Keywords: Health related quality of life, Physical function, Bodily pain, Role physical, Role emotional, Vitality, General health.

Introduction:

The World Health Organization defines health as "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity." The impact of any disease, especially a chronic illness like tuberculosis, on an individual patient is therefore often all encompassing, affecting not only his physical health but also his psychological, economic, and social well being.[1] Kaplan and Bush proposed the use of the term " health related quality of life" (HRQL) to distinguish health effects from other factors influencing a subject's perceptions (such as environmental factors or job satisfaction) and constituting a complex, multidimensional construct.[2]

HRQL broadly describes how well individual function in daily lives and their own perception of well-being in physical, psychological and social aspects.[3,4] Knowing patients HRQL would enable program managers and clinicians to understand the functioning and well being of TB patients so that individual patient's specific needs are addressed to attain the best clinical or treatment outcome.

Of a number of HRQL assessment tools designed and used in medicine, The Medical Outcome short-form (MOSF-36) has been well validated and extensively used in clinical and community setting. The SF-36 was used in 6 studies with different language versions. It consists of 36 items which are aggregated into 8 subscales, including physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH).[4] From the 8 subscales, the physical component summary (PCS) and mental component summary (MCS) scores can be also calculated. This is a generic instrument covering multiple dimensions, including physical function, social function, general health, vitality and limitations due to physical and emotional functioning. The well known SF-36 was developed and evolved based on a subset of items from the MOS core questionnaire.[5]

Therefore, for a comprehensive assessment of the patient under treatment of tuberculosis, certain question need to be asked in terms of patients perception of improvement, besides routine clinical, bacteriological and radiological assessments, these question have been framed as HQRL

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scores and the present study proposes a concept of HQRL scoring in tuberculosis and an attempt has been made to validate HQRL scoring questionnaire. These scores assume greater importance under the revised strategy of treatment of tuberculosis i.e. RNTCP, since the follow up for dots strategy is based only on bacteriological examination of sputum.

Materials and Method:

The study was carried out in referred tertiary care hospital, Subharti Medical College Uttar Pradesh. Total 80 patients were selected for the study both pulmonary and extrapulmonary cases of tuberculosis (sputum positive and negative) of any age group, who were put on treatment under DOTS centre based on inclusion and exclusion criteria.

Inclusion Criteria:

- Sputum Positive or Negative Pulmonary tuberculosis patients of any age group registered under DOTS
- Extra pulmonary tuberculosis

Exclusion Criteria:

- Patients not registered under DOTS
- Uncooperative patients
- Patients with any other associated diseases
    - Asthma
    - COPD
    - Hypertension
    - Cardiac diseases
    - Diabetes mellitus
    - Epilepsy
    - CRF

For each of the 36 questions in the SF-36, the scorer (means the patient) was required to rate their health related quality to measure the HRQL, an interviewer administered of the standard MOS -36 questionnaire 13 consists of eight parts:

- Physical function (PF)
- Role – Physical (RP, four items)
- Role - Emotional (RE, three items)
- Bodily pain (BP, two items)
- Vitality (VT, four items)
- Social functioning (SF, two items)
- Mental health (MH, five items)
- General health (GH, five items)

SF-36 is a score based questionnaire that comprises 36 items covering eight topics chosen on basis of reliability, validity and frequency of the measurement in health surveys.

During the study the questionnaire was administered to the patients at the beginning of treatment, after 0, 4, and 8 weeks of the treatment. The validity of the questionnaire was tested by calculating internal consistency, discriminate validity, equality in correlation and equal variance hypothesis; an internal consistency of 0.4 was considered a cut off point for validity.

We evaluated the case by completing the SF-36 questionnaire in all the subjects by score archive. Consecutive patients were given the SF-36 at start of the clinic attendance and observed completion of the form. Para medical staff was used for administering the SF-36 and to strike out whatever which was not relevant to the patients after discussing his work and background.

- Performa Used:
    - General and Physical Examination
    - SF-36 Questionnaire

Statistical Analysis

- Sample size collection:

Sample size was calculated by using the Cronchbach's alpha formula. The total number of subjects was calculated and accordingly all subjects were registered in the study in DOTS as per RNTCP guideline

- Data collection:

To measure the HRQL, Indian version of the standard MOS SF-36 questionnaire was administered. The reliability of the SF-36 responses was estimated by Cronchbach's alpha formula:

RTT 5 k 3 rii/ [11 (k 21) 3 rii]

Where Rtt is the reliability of the SF-36 scale, k is the number of items in a scale, and rii is the average inter item correlation 5 S pairs of correlations/number of correlations in each scale.

Visual Fox Pro 6.0 (Microsoft Corp, Remond, WA, USA) and SAS 6.12 (SAS Institute, Cary, NC, USA) software were used for database and statistical analysis, respectively. A stepwise logistic regression procedure was used for multivariate analysis; t-test was used to compare the mean difference of the two groups; and x2 and f-test were test statistics at a significant level of alpha ≥0.05. Pearson's

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correlation coefficients and factor analysis were used to compute validity, reliability and correlations of SF-36 items and scales.

Result:

Out of 80 patients 41 were females and 39 were males. Out of which 49 patients were diagnosed with pulmonary tuberculosis and 31 patients were diagnosed with extra-pulmonary tuberculosis.

The outcome of SF-36 for different categories at 0, 4 and 8 weeks was:

S.No	Criteria	0 week	4 weeks	8 weeks
1	Physical Function	53.31%	65.24%	79.81%
2	Role Physical	23.13%	40.31%	57.50%
3	Role Emotional	29.99%	43.70%	63.70%
4	Bodily Pain	36.68%	40.68%	46.16%
5	Vitality	42.38%	49.50%	57.56%
6	Social Functioning	39.20%	44.60%	51%
7	Mental Health	36.50%	39.02%	43.36%
8	General Health	38.56%	41.09%	43.41%

Discussion:

HRQL has been appreciated as an important health outcome measure in clinical research. We identified 12 original studies where multidimensional HRQL was assessed among people with TB disease or infection using structured instruments around the world. It was found that the TB and its treatment in DOTS under RNTCP guideline have a significant impact on patient's quality of life from various aspects and this impact tends to persist for a long time even after the successful completion of treatment and the microbiological cure of the disease.[6,7,8,9]

The patterns observed in the present study the following parameters were observed, the mean of PF, RE, BP, SF and GH score were $p<0.05$. Physical scales (PF, RP) were increased significantly while other scales like (VT, RE, SF, GH) have shown initial improvement which was not very significant at the end of 8 weeks treatment, while mental health have not shown any improvement.

- Physical function:

It reflects the capacity of the patient to carry out basic day to day vigorous activities, such as running, lifting heavy objects, strenuous sports, moderate activities, such as moving a table, vacuuming, bowling, lifting or carrying groceries, climbing several flight of stairs etc. Physical function at 0,4,8 weeks were evaluated. It was found that there was remarkable improvement in physical function. This improvement in our study after ATT treatment in physical function as per SF-36 scales is as per our agreement in other studies.[7,9,10,11]

- Role Physical

It explains the cut down of amount of time spent on work or other activities, accomplished less than we would like. Limited in the kind of work or other activities, difficulty in performing work or other activities. RP scales were also more strongly affected, because of effect of TB on patients. Role physical at 0,4,8 weeks were evaluated. There was significant improvement in the role physical function after ATT from DOTS under RNTCP guideline. This improvement of RP was in agreement with other studies.[7,9,10,11]

- Role Emotional

It explains the cut down of amount of time spent on work or other activities, accomplished less than we would like, didn't do work or other activities as carefully as usual. Psychological health takes into account several facets of the individual's mood and emotional well being. Most patient are worried, frustrated by the diagnosis, and almost a quarter does not initially accept the diagnosis. The economic burden of the disease as well as distress about spreading disease to others may also impair the psychological health. RE scales showed much improvement, which was more strongly affected, probably due to the effect of TB on patients physical health. In our study RE improvement after ATT treatment was very significant comparing to the other scales which was in agreement with previous studies.[6,7,9,11]

- Bodily pain

It explains the intensity of body pain extent which interfered with normal work. BP scales one of the more important scales in terms of quality of life and day to day work do not show much improvement in our study, which was more strongly affected, probably due to the effect of TB on patients. Similar results after ATT treatment in body pain function as per SF-36 scales have been shown in other studies.[6,7,9,11] Few studies have shown that the bodily pain scores had a rapid positive response.[12] This can be explained by the fact that the bodily pain is one of the three strongest measures of physical health component, which tends to do best in detecting the impact of medical interventions,

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this may be because of shorter duration of follow up in our study we have evaluated only for 8 weeks while other studies have a taken a longer time in this perspective.

- Vitality

It explains about the patient's feel of life, have a lot of energy, feel worn out, feel tired. VT scales also do not show much improvement, which was more strongly affected, due to long duration of disease and frequent sickness, which increased after the effect of TB on patients and their physical health and quality of life. The improvement in vitality after ATT in our study was not significant this was in agreement with some studies. [6,7,9,11] Some studies showed a positive response in the vitality score.[12] The difference in the result can be explained by the fact that, this may be because of shorter duration of follow up in our study, we have evaluated only for 8 weeks while other studies which have shown improvement in this scale have completed their study after complete ATT treatment.

- Social Functioning

It is not related to the disease pathology but plays a very important role in the quality of life. It explains about the extent of health problems interfered with normal social activities, frequently health problems interfered with social activities. It also did not show much improvement similar results were also seen in some studies. It was probably due to stigma and misconception about this disease among the societies. Some studies showed a significant improvement in social functioning.[12]

- Mental Health

It explains about the mental state of the person, that has been a very nervous person, felt so down in the dumps that nothing could cheer you up. Felt calm and peaceful, felt down, or have been a happy person. MH scale also did not show much improvement, which was more strongly affected, probably due to poor general, physical and social health which increased after the effect of TB on patients. It also did not show much improvement after 8 weeks of treatment similar results were seen in other studies as well. [6,7,9,11] This explains the fact that metal health functioning is one of the strongest measures of the physical health component, which tends to do negative role on the impact of the disease.

- General health

This explains about the condition of his or her health like, excellent, very good, good, fair and poor. Whether his condition is same as it was, or getting worse or improving. GH Scales also did not show much improvement which was more strongly affected. It was observed that there was minimum improvement in general health which was more strongly affected. This was in agreement with some other studies. [6,7,9,11]

Conclusion:

The results suggest that TB disease has negative and encompassing impact on active TB patient's self perceived health status in physical psychological and social aspects. Overall, the anti-TB treatment under DOTS showed positive effect on improving patients HRQL. It appeared that physical health seemed to be more affected by the disease but improved more quickly after treatment, while impairment on mental health tend to persist for a longer term.

All these consequential impairments also need to be cured and may take a long recovery time.

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