Psychiatric Morbidity in Post Traumatic Orthopedically Handicapped Patients

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Abstract

Objectives: Prevalence of comorbid psychiatric disorders in trauma is high and it increases the overall management difficulty. The current study attempts to find out the prevalence of psychiatric disorders and factors affecting these disorders in post traumatic orthopedically handicapped patients. Method: This is a hospital based cross-sectional study which involves 85 post traumatic orthopedically handicapped inpatients and outpatients of orthopedics, rehabilitation unit and psychiatry. They were screened for psychiatric symptoms by SCL-90R (Symptoms Check List-90 Revised). All patients underwent detailed psychiatric assessment using ICD-10 (International Classification of Disease-10) criteria and further subjected to MADRS (Montgomery Asberg Depression Rating Scale) and HARS (Hamilton Anxiety Rating Scale) to assess severity of the symptoms. Results: 67.6% patients had psychiatric symptoms. According to ICD-10, 38% had depressive disorder of which majority have mild to moderate depressive disorder. 26.8% patients had post traumatic stress disorder, 15.5% phobic anxiety disorder, 14% adjustment disorder, 12.7% somatoform disorder and 4.2% acute stress reaction. Conclusions: The psychiatric comorbidity was observed more in temporal association to traumatic injury, was higher in intensity and severity after more severe injury. The psychiatric co-morbidity following trauma needs to be addressed while we aim for holistic treatment of a patient.

Key Words: Psychiatric morbidity, Orthopedic handicap, Trauma.

Introduction

Road trauma is becoming a major health problem, accounting for 2.1% of all deaths globally. Psychiatric complications of physical injury are a public health concern. The high prevalence of physical injury along with advances in trauma care that have resulted in greater number of individuals surviving traumatic injury underscore why psychiatric complications of physical injury are a major public health concern. After trauma, recovery depends on the outcome of mental health. Poor mental health, development of symptoms of PTSD (Post Traumatic Stress Disorder), depression and increased substance abuse leads to poor recovery.

A term orthopedic handicapped is usually restricted to conditions of bone deviations such as amputation and shortening of limb that may be due to amputation or muscle deviation. These conditions of physical disability lead to various somato-psychological symptoms any Indian Studies.

First 3 months following the accident are critical period for the development of psychological symptoms especially the PTSD and the development of PTSD can be predicted as early as 1 week after the accident. So, the necessary interventions are required during this period. In a study on traffic accident victims, it was found that...
significant number of injured manifested PTSD one year after the event.\cite{3}

Patients were more depressed acutely following their amputation than when assessed months or years later.\cite{4} One third to one half of the amputees showed moderate disturbance of depression and autonomic reactions which continued a year later. One quarter of group reported feelings of insecurity, self-consciousness, restlessness, depression and insomnial.\cite{5} Another study on long-term limb amputations found significant depressive symptoms (32%) and anxiety symptoms (34%). Nearly 24.6% of respondents reported significant post-traumatic psychological stress symptoms.\cite{6}

The rationale behind the current study is to assess the prevalence of psychiatric disorders and to identify the contributory factors that aggravate the psychiatric morbidity in posttraumatic orthopedically handicapped patients.

**Methods**

This is hospital based cross-sectional study. Patients with orthopedic handicapped injury were inducted from those attending the outpatient clinic of the Departments of Orthopedics, Rehabilitation unit of Orthopedics and Department of Psychiatry and those admitted to the inpatient services of Departments of Orthopedics, Rajindra Hospital of Government Medical College, Patiala. The study was approved by the ethical committee of the institute.

The sample consisted of 85 patients and after applying exclusion criteria like pre-existing psychiatric disorders, chronic medical illness, epilepsy, mental retardation and refusal to give consent, 14 patients were excluded and 71 patients were found eligible for the study. All queries regarding the study were explained and a written informed consent was taken from those eligible for the study.

**Instruments:**

1. Semi structured Performa to record socio-demographic details of the patients, presenting complaints, history of illness, circumstances of injury, time since injury, treatments received and symptoms associated with treatment.
2. Symptom Check List 90-Revised (SCL-90R)\cite{7} - Self-report inventory having 90 items to measure symptom intensity on nine different subscales. It is a measure of current, point-in-time psychological symptom status, not a measure of personality. The questionnaires are scored on a five-point Likert scale, indicating the rate of occurrence of the symptom during the time reference. Each of the nine symptom dimensions comprises 6-13 items. Each item of the questionnaire is rated by the patient on a five-point scale of distress from 0 (none) to 4 (extreme). The scores on each dimension are means of the scores of all items of the dimension, 0-25% of the maximum score–absent category, 25-50% of the maximum score– mild, 50-75% of the maximum score– moderate, 75-100% of the maximum score– severe category.
3. ICD-10 criteria for diagnosis of psychiatric disorders.\cite{8}
4. Montgomery Asberg Depression Rating Scale (MADRS)\cite{9} - The rating is based on a clinical interview which moves from broad questions about symptoms to more detailed ones which permit rating of severity. The rating lies on the defined scale steps (0, 2, 4, 6) or between them (1, 3, 5). Scores of 0-6 indicates Normal/recovered, 7-19 mild, 20-34 moderate and 35-60 severe depression.
5. Hamilton Anxiety Rating Scale (HARS)\cite{10} - Semi-quantitative scale used to assess severity of the clinical condition and not to serve as a diagnostic tool. Only few of the 14 items are clinical signs to be directly observed during the interview. The majority of the items are symptoms and here the assessment must be based on the condition during the last days (minimum period 3 days). A total score of 0-5 indicates no anxiety, while scores of 6-10 mild, 11-15 moderate and ≥ 15 indicates severe anxiety.

All 71 patients were administered SCL-90R scale to screen and grade the severity of psychiatric symptoms. This was followed by applying the ICD-10 criteria to ascertain the diagnosis. MADRS and HARS scales were administrated to establish the severity of depression and anxiety respectively.
The data were subjected to statistical evaluation using SPSS 17 software. Descriptive statistics were used to characterize demographic and clinical data of the whole sample. The data was assessed by mean, range and standard deviation. The discrete data was assessed in number and percentage. Statistical significance was set at $P < 0.05$ (significant) and $P < 0.01$ (highly significant).

**Results**

In our study, total number of patients was 71, 40 patients were male (56.3%) and 31 females (43.7%). Majority of patients were married (69%) and (31%) were single/divorced/widowed. 44(62%) patients belong to urban background as compared to rural background 27(38%). 64.8% of the totals were from the age group of 20-39 years with range of 14-65 years and mean age was 33.29 years (SD-8.45) which means that it most commonly involves the reproductive age group of the population.

Higher proportion of the patients had upper limb involved in injury (50.7%), 32.4% had lower limb involved and rest of them had involvement of both limbs. 43.7% of patients had injury since 1-2 years, 35.2% had injury since less than 1 year and rest of them had injury of more than 2 year duration. 40.8% had injury while working in industry, 29.6% had road accidents and rest got injury at fields or during quarrel.

On SCL-90R, most of the patients (67.6%) had psychiatric symptoms, mean score was 172.34 ± 33.57 with range of scores of 39-298. 21 patients (29.6%) had scores between 91-180 indicating of mild symptoms, 15(21.1%) between 181-270 suggesting moderate symptoms, 12(16.9%) between 271-360 suggesting severe symptoms. Further on subscales of SCL-90 R, depression and anxiety symptoms were more prominent followed by phobic and additional symptoms. 45 patients had depressive symptoms (63.4%), 38 patients had anxiety symptoms (53.5%), 25 patients had phobic symptoms (35.2%).

According to ICD-10 diagnosis, 38% had depressive disorder of which majority (31%) have mild to moderate depressive disorder while 7% had severe depressive disorder. 26.8% patients had diagnosis of PTSD, 15.5% had phobic anxiety disorder, 14% had adjustment disorder, 12.7% had somatoform disorder and 4.2% had acute stress reaction (Table 1).

<table>
<thead>
<tr>
<th>ICD-10 Diagnosis</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactions to stress and adjustment disorder (F43)</td>
<td>32</td>
<td>45.1%</td>
</tr>
<tr>
<td>1. Acute stress reaction (F43.0)</td>
<td>3</td>
<td>4.2%</td>
</tr>
<tr>
<td>2. PTSD (F43.1)</td>
<td>19</td>
<td>26.8%</td>
</tr>
<tr>
<td>3. Adjustment Disorder (F43.2)</td>
<td>10</td>
<td>14%</td>
</tr>
<tr>
<td>4. Depression (F32)</td>
<td>27</td>
<td>38%</td>
</tr>
<tr>
<td>Mild (F32.0)</td>
<td>8</td>
<td>11.3%</td>
</tr>
<tr>
<td>Moderate (F32.1)</td>
<td>14</td>
<td>19.7%</td>
</tr>
<tr>
<td>Severe (F32.2)</td>
<td>5</td>
<td>7%</td>
</tr>
<tr>
<td>5. Phobic anxiety disorder (F40)</td>
<td>11</td>
<td>15.5%</td>
</tr>
<tr>
<td>6. Somatoform disorder (F45.0)</td>
<td>9</td>
<td>12.7%</td>
</tr>
</tbody>
</table>

Anxiety severity was assessed on HARS, mean score of 9.89 ± 5.54, range of scores was 2-19. 13 patients (18.3%) had scores between 6-10 indicating of mild anxiety, 10(14%) between 11-15 suggesting of moderate anxiety, 7(9.8%) had scores >16 indicating of severe anxiety symptoms (Table 2).

<table>
<thead>
<tr>
<th>HARS</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>41</td>
<td>57.9%</td>
</tr>
<tr>
<td>6-10</td>
<td>13</td>
<td>18.3%</td>
</tr>
<tr>
<td>11-15</td>
<td>10</td>
<td>14%</td>
</tr>
<tr>
<td>&gt; 16</td>
<td>7</td>
<td>9.8%</td>
</tr>
<tr>
<td>Range</td>
<td>2-19</td>
<td></td>
</tr>
<tr>
<td>Mean±SD</td>
<td>9.89±5.54</td>
<td></td>
</tr>
</tbody>
</table>

After assessing depression severity on MADRS, mean score came out to be 21.64±8.498 with range of 3-45. 18 patients (25.4%) had scores between 7-19 indicating of mild depressive symptoms, 14(19.7%), between 20-34 suggesting of depression of moderate intensity, 9(12.7%) had scores >35 indicating of severe depressive symptoms (Table 3).

<table>
<thead>
<tr>
<th>MADRS score</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>30</td>
<td>42.2%</td>
</tr>
<tr>
<td>7-19</td>
<td>18</td>
<td>25.4%</td>
</tr>
<tr>
<td>20-34</td>
<td>14</td>
<td>19.7%</td>
</tr>
<tr>
<td>35-60</td>
<td>9</td>
<td>12.7%</td>
</tr>
<tr>
<td>Range</td>
<td>3-45</td>
<td></td>
</tr>
<tr>
<td>Mean±SD</td>
<td>21.64± 8.498</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The present study was carried out with the aim of finding the prevalence of psychiatric disorders among patients who had lost a part of the body after some trauma as there are no major studies available from the Indian setup so we tried to find out the psychiatric morbidity in Indian population so that early psychiatric intervention can be provided to these patients for better adaptation to their loss in the society.

As observed, majority of patients were male from the age group of 20-39 years with range of 14-65 years (mean age - 33.29 years) which means that it most commonly involves the reproductive age group. The results were comparable to other studies which show that majority of the patients were in the age group of 11-52 years and males outnumbered the females in all age groups.11-13

Visibility of injury especially involving limbs was found to be crucial factor in causing psychiatric symptoms in trauma patients. In present study, most of the patients with psychiatric morbidity were handicapped through upper or lower limbs which were not different from similar study attempted earlier which observed symptoms of depression and anxiety who had an acquired cause of upper limb amputation.14 Amputation resulting from accidental injury leads to higher prevalence of PTSD, in part because of the emotional stress surrounding the accident.11 As noted, higher proportion of patients got injuries either in road accidents or while working in industry/fields. Existing literature also revealed that various causes of trauma were road traffic accident (42%), industrial accident (23.33%) and farming accident (10%).15

About 20% of patients reported severe phobic anxiety and depression even two years after severe lower limb injury.16 Past literature suggested that new rehabilitation teaching skills at the earliest stage of trauma can modify the outlook of amputee patients. A study on patients with lower limb amputation admitted to rehabilitation ward found that 51.5% patients had psychiatric symptoms at their admission and this drops to 8.6% after 2 months.17 Another study on young and old, recent and long term amputees found that, in older group, longer the time since amputation, the fewer psychological symptoms and less depression exhibited. Younger amputees had increased psychological symptoms and increased rate of depression. Younger amputees appear to be anxious, sensitized, vigilant person who had difficulty in integrating his/her present life.18

Our data clearly reveals that most of the patients (67.6%) had psychiatric symptoms and had one or more psychiatric diagnosis which is comparable to another study on limb amputees in which psychiatric morbidity was found in 72.5% patients. But with short term psychiatric intervention, this number reduced to 50%. This difference is statistically significant so it is of great help for the recovery of amputated patients.13

In this study, the most common ICD-10 diagnosis is depressive disorder (38%) of which majority (31%) had mild to moderate depressive disorder and 7% had severe depressive disorder. These finding were comparable to other previous study.19 Another study evaluated depression in patients with orthopedic trauma and found that 55% of patients had minimal depression, 28% had moderate depression, 13% had moderate to severe depression and 3.7% had severe depression.20 While other study observed major depression in 74.3% patients of lower limb amputation and 25.7% were diagnosed with dysthymia or atypical depression.21

The second most common diagnosis in our study was PTSD (26.8%). Remaining patients had phobic anxiety disorder (15.5%), adjustment disorder (14%), somatoform disorder (12.7%), and acute stress reaction (4.2%). A longitudinal study on amputees over a 10 years period found that the most common symptoms were anxiety, insomnia, suicidal thoughts, phantom-limb phenomenon and flashbacks.22 In another prospective longitudinal study shortly after a motor vehicle accident, it was observed that the prevalence of PTSD was 23.1% at 3 months and 16.5% at one year.23

Pharmacological and psychological interventions have a positive impact on psychiatric symptoms in handicapped patients. Treatments of problems in social areas include cognitive behavior therapy, social skill training and community interventions. So, the symptoms of anxiety and mood should be the subject of screening in the post-burn phase and treated if indicated.
Diagnosing psychiatric morbidity in orthopedically handicapped patients has many implications. Undiagnosed and untreated psychiatric morbidity might affect the treatment compliance and cause overall poor quality of life. Another issue which is of importance is proper training of clinicians to recognize and refer patients with common mental disorders.

Limitations

Though the present study was conducted using sound methodology and strict inclusion criteria, there are certain limitations. The study was cross sectional. The sample size, though reasonable, was lesser than some of the previous similar studies. The sampling done was non-randomized because of which the finding of the study can only be representative of the study population and cannot be extrapolated to the community at large. Longitudinal studies involving larger samples selected by systematic sampling methods would be needed to estimate true prevalence of psychiatric morbidity in these patients.

Conclusion

Psychiatric morbidity especially depression and anxiety disorders are very frequent in orthopaedically handicapped patients. The duration, site and severity of injury influence the association of the psychiatric morbidity and handicapped injury, as significant number of patients had severe injuries. Upper extremity was found to be significant factor in producing the psychiatric morbidity. So, this study highlights that psychiatric care must be included at every stage of treatment for better adjustment and quality of life of handicapped patients. The eventual outcome for handicapped patient is related to injury severity, individual physical characteristics of patients, motivation of patient, quality of treatment and after care support. Handicapped patients often require years of supervised rehabilitation, reconstruction and psychosocial support.

References