 Characteristics, nutritional and health status of addicts hospitalized for detoxification

Bahaa A. Abalkhail, MD, PhD.

ABSTRACT

Objectives: To identify the characteristics, nutritional and health status of drug addicts hospitalized for detoxification in Jeddah Al-Amal Hospital. Also, to assess the detoxification therapy and its impact on the nutritional status.

Methods: All patients admitted to Jeddah Al-Amal hospital from January to June 1996 were examined and followed until the end of detoxification therapy.

Results: The majority of drug abusers were between 20 and 34 years and below university education. Unemployment was a common feature among 57.1% of them. Smoking, alcohol consumption and family history of drug and alcohol intake were important contributing factors. Most addicts (63.6%) used heroin intravenously. Depletion of body fat, muscle protein in addition to depleted visceral protein and depressed immune function were prevalent features. Liver damage was reflected by elevated mean aspartate transaminase. High prevalence of hepatitis C and B infections were detected. Human immunodeficiency virus infection, tuberculosis and gastrointestinal disorders were also reported by some addicts. A significant gain in mean body weight was seen after detoxification therapy and 11.3% of patients experienced symptoms in the form of vomiting, nausea, constipation and loss of appetite. Failure of previous detoxification therapy was reported by 69.1% of patients.

Conclusion: Drug addiction attacks the nutritional and health status of individuals who become more prone to various infectious diseases and less productive. Extensive education health programs, directed to all population categories, are crucial to prevent and control the spread of drug abuse. More research is recommended to identify the determinants of drug addiction and evaluate the detoxification therapy.

Keywords: Addiction, sociodemographic factors, health, nutrition.


In the last decade, the prevalence of drug abuse has increased dramatically causing significant social, economic and medical consequences in the industrialized countries.\(^5\) Costly detoxification, specialized treatment centers and expensive hospital care for medical complications impose a serious financial burden.\(^9\)

The toll on human life is increasing as a wide range of complications are nowadays proved to be associated with drug abuse. Drug abusers are prone to develop high prevalence of chronic diseases such as chronic hepatitis\(^9\) or human immunodeficiency virus infection.\(^10\) Moreover, drug abuse is associated with anorexia and change in food intake as a consequence of associated psychological disturbances.\(^11\) These alterations may often lead to severe weight loss, involving body depletion and contributing to the development of malignant or...

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infectious complications and depressed immune functions. Drug abuse is a significant public health problem with resounding complications. Perhaps, more alarming is the trend toward heavy drug abuse among adolescents and working populations who become less productive.

Literature on this issue from Saudi Arabia is rare. However, the few published studies suggested the existence of drug abusers in the community. To prevent the spread of drug abuse and control the existing cases in the Kingdom, 3 specialized drug rehabilitation centers called Al-Amal Hospitals, have been implemented in Riyadh, Jeddah and Damam. The objectives of these centers were to introduce to the country the latest advances in the management of drug abuse including prevention, detoxification and post-detoxification follow-up. Moreover, to study the frequency, distribution and determinants of the problem in the Kingdom. In Jeddah, Al-Amal Hospital has started functioning since September 1991 and achieves an integrated preventive, treatment and post-detoxification follow-up program. The experience of these treatment facilities has not yet been published. The purpose of this study was to identify the main characteristics, nutritional and health status of the patients hospitalized for detoxification in Jeddah Al-Amal Hospital. Also, to evaluate the detoxification therapy and its impact on the nutritional status.

Methods. Data was collected, using a structured questionnaire, for all patients admitted for detoxification therapy in Jeddah Al-Amal Hospital from January to June 1996. All patients admitted during this period were examined and followed by physicians until the end of the detoxification therapy. In all cases, nutritional status was assessed on admission using the triceps skin fold thickness (TSF) which reflects the body fat; the mid-arm muscle circumference (MAMC) as a measure for muscle protein; serum albumin as an index for visceral protein and the total lymphocyte count (TLC) which reflects visceral protein and cellular immunity. The MAMC was calculated from the mid-arm circumference (MAC) as: MAMC (cm) = MAC (cm) - 0.314 x TSF (mm). The TLC was calculated from complete peripheral blood count using the formula: TLC (mm³) = % lymphocyte x white blood cell count.

TSF and MAMC were classified into normal (standard), mildly depleted (90% standard), moderately depleted (60-90% standard) and severely depleted (<60% depleted). Serum albumin and TLC followed the same classification. Table 1 shows the classification of nutritional status.

Health status was assessed using aspartate aminotransferase (AST), gamma-glutamyl transferase (GGT), total bilirubin and presence of chronic diseases on admission. Elevated values were defined as: AST >40 IU/L, GGT >60 IU/L and serum bilirubin >17 mmol/L. Hepatitis B virus surface antigen (HBsAg), serum hepatitis C virus (HCV) and human immunodeficiency virus (HIV) antibodies were also performed.

Detoxification therapy was assessed by previous therapy failure and experienced symptoms during the current therapy in the form of nausea, vomiting, constipation and loss of appetite. Also, progress in nutritional status was evaluated by comparing the mean body weight and mean serum albumin on admission and after detoxification therapy.

Data entry and analysis was carried out using SPSSPC computer package. Chi-square test was used to detect significant associations. Paired t-test was used to detect significant differences in mean body weight and serum albumin pre and post-detoxification therapy.

Results. Patients characteristics on admission. A total of 382 male addict patients of Saudi nationality hospitalized for detoxification, in Jeddah Al-Amal Hospital, were the subject of this study. Their age ranged from 17 to 63 years (mean = 29.8 ± 0.3) and the mean duration of addiction was 5.8 years (± 0.2). The characteristics of patients hospitalized for detoxification in Jeddah Al-Amal Hospital were as follows: only 3.7% were under 20 years, 74.3% were between 20-34 years and 22.0% were 35 years or over. The majority (93.2%) attended either

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<th>Normal</th>
<th>Mildly depleted</th>
<th>Moderately depleted</th>
<th>Severely depleted</th>
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<tr>
<td>TSF (mm)</td>
<td>≥12.5</td>
<td>12.4-11.3</td>
<td>11.2-7.5</td>
<td>&lt; 7.5</td>
</tr>
<tr>
<td>MAMC (cm)</td>
<td>≥25.3</td>
<td>25.2-22.8</td>
<td>22.7-15.2</td>
<td>&lt;15.2</td>
</tr>
<tr>
<td>Serum albumin</td>
<td>3.5</td>
<td>3.4-3.0</td>
<td>2.9-2.1</td>
<td>&lt;2.1</td>
</tr>
<tr>
<td>Total lymphocyte count (mm³)</td>
<td>≥1500</td>
<td>1499-1200</td>
<td>1199-800</td>
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primary or secondary schools, very few reached university level (3.4%) and similar proportion never attended a school. About half were never married, 42.4% were actually married and the remaining 8.6% were divorced. All married participants had a single wife except 4 participants, of who 3 had 2 wives and one 3 wives. The majority (81.0%) of the current or previously married men had children.

Table 2 shows the distribution of patients hospitalized for detoxification in Jeddah Al-Amal Hospital by type of (current or previous) occupation. Table 3 shows the number and proportion of patients who lost their job by type of occupation in Jeddah Al-Amal Hospital. Loss of job accounted for 52.6%. Thus unemployment accounted for 57.1% of the whole sample.

All participants were smokers and 57 patients (14.9%) reported family history of drug abuse. Also, 213 participants (55.8%) reported alcohol consumption and 48 (12.6%) reported family history of alcohol intake.

**Drug history.** Table 4 shows the distribution of patients hospitalized for detoxification in Jeddah Al-Amal Hospital by drug type and age groups. Heroin abuse was the most prevalent (63.6% of patients), few reported amphetamine (6.5%), volatile (6.0%) or alcohol addiction (4.7%). Polydrug abuse was reported by 19.1% of patients, almost all, used heroin in combination with another drug and alcohol or both. There was no significant difference in drug preference by age group ($X^2=2.9$, df=4, $P=0.550$).

The main route of administration (Table 5) was intravenous (IV) injection and was reported by about half of the patients. Inhalation and oral administration were also reported and accounted for 13.1% and 12.3%. A total of 28.0% reported multiple routes of administration. Still, there was no significant difference in route preference by age group ($X^2=3.3$, df=3, $P=0.352$).

**Nutritional status on admission.** Table 6 shows the nutritional status on admission of patients hospitalized for detoxification in Jeddah Al-Amal Hospital. The mean TSF of patients on admission was 14.9 mm (± 0.2) and 36.4% of patients showed TSF depletion. The mean MAMC accounted for 25.8 cm (± 0.7) and 24.3% of cases showed MAMC depletion.

The mean serum albumin was within normal value (4.8 g/dl, ± 0.1) and only 2.6% showed low values. The mean TLC accounted for 23713/mm² (± 80.2) and 27.2% of cases showed low TLC values.

**Health status on admission.** The mean AST was elevated while this was not the case for the mean GGT and bilirubin. There were 34.8% of cases with elevated AST, 8.6% with elevated GGT and 8.4% with elevated serum bilirubin.

HCV infection was the most prevalent infection as HCV antibodies were detected in 31.9% of cases. HBV infection was the next common and was
Table 6 - Nutritional status on admission of patients hospitalized for detoxification in Jeddah Al-Amal Hospital

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<tr>
<th></th>
<th>Normal</th>
<th>Mild depletion</th>
<th>Moderate depletion</th>
<th>Severe depletion</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td></td>
<td>No (%)</td>
<td>No (%)</td>
<td>No (%)</td>
<td>No (%)</td>
<td>No (%)</td>
<td></td>
</tr>
<tr>
<td>TSF mm</td>
<td>243 (63.6)</td>
<td>61 (16.0)</td>
<td>60 (15.7)</td>
<td>18 (4.7)</td>
<td>14.9 (0.2)</td>
<td></td>
</tr>
<tr>
<td>MAMC cm</td>
<td>289 (75.7)</td>
<td>28 (7.3)</td>
<td>60 (15.7)</td>
<td>5 (1.3)</td>
<td>25.8 (0.7)</td>
<td></td>
</tr>
<tr>
<td>Albumin g/dl</td>
<td>372 (97.4)</td>
<td>4 (1.0)</td>
<td>3 (0.8)</td>
<td>27 (7.1)</td>
<td>4.8 (0.1)</td>
<td></td>
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<tr>
<td>TLC/mm³</td>
<td>278 (72.8)</td>
<td>35 (9.2)</td>
<td>42 (11.0)</td>
<td>2371.3 (80.2)</td>
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diagnosed in 15.4%. HIV virus antibodies were detected in 0.8% and TB in 2.4% of patients. Gastrointestinal disorders, mainly peptic ulcer, were reported by 3.7% of patients.

**Detoxification therapy.** The majority of patients (69.1%) reported history of previous detoxification therapy at least once. For the current detoxification therapy, the mean detoxification period was 10.3 days (± 0.3). About 11.3% patients suffered from symptoms in the form of nausea, vomiting, constipation and loss of appetite during therapy.

After detoxification therapy, the progress in the nutritional status was evaluated using the change in mean body weight and mean serum albumin. Patients showed a net gain in mean body weight at the end of the detoxification period (paired t-test= 17.6, df= 381, P<0.001). Mean serum albumin did not show any significant change after therapy (paired t-test= 1.2, df= 381, P= 0.214).

**Discussion.** Drug addiction is attacking the working population and can lead to drastic consequences on the health and economy. This problem is still in its infancy in the Kingdom of Saudi Arabia but should not be neglected to prevent its spread.

Our results have shown that drug addiction is most prevalent among the 20-34 years individuals who are expected to be the most productive group of the society. The age range was 17-63 years with a mean age of 29.8 years. These results coincide with previously published data in Saudi Arabia and in the western world. In our study, only 3.7% of cases were below 20 years, this still coincides with previously reported data for Saudi Arabia but contrasts with the 15-50% in the western world. This could be either due to the family life style in the Kingdom that provides close supervision to youngsters and do not give them full autonomy before their twenties or due to the fact that this age is not easily discovered and not yet at a stage of alertness to seek medical advice.

Drug addiction was more prevalent among those at primary and secondary school education. Whether drug addiction is more prevalent among these education categories or addiction hinders education progress, needs more evaluation. Neither marriage nor childbearing protected individuals from drug abuse. Broken marriage was reported by 8.6% of patients, which could have an adverse social impact on the society.

Drug addiction was found to be prevalent among various occupations especially soldiers and employees. Unemployment was a common feature as 9.4% never worked and 52.6% of the remaining patients lost their job. Loss of job was significantly (P<0.001) related to the type of occupation and was more prevalent among soldiers, employees and laborers. This high proportion of unemployment coincides with previously published studies and confirms the fact that drug addiction decreases performance and working capabilities.

Life style and family life affects the behavior of individuals. Our results suggest an intimate relation between smoking and drug addiction as all patients were smokers. Alcohol intake was a second contributory factor to drug abuse as 55.8% of patients consumed alcohol. Also family history of drug abuse and alcohol intake or both were reported by many patients.

As previously published in Saudi Arabia, heroin was the most prevalent drug abused. Heroin abuse accounted for 63.6% of cases, alcohol abuse accounted for 4.7% while combined heroin with other drug abuse accounted for 19.1%, thus putting heroin on the top of drugs abused. Also few cases reported volatile and amphetamine abuse and accounted for 6.0% and 6.5%. Moreover, IV route, with all its possible complications, was the preferred method of drug administration. There was no significant difference in drug or route preference by age group.

Poor nutritional status of addicts was previously published by many authors. Our results have shown TSF depletion in about 36.4% of patients on admission while MAMC depletion was recorded in 24.3%. These results suggest the prevalence of body fat and muscle protein depletion among addicts especially that the majority are heroin abusers. Serum albumin depletion was only seen in 3.1% of patients and mean serum albumin was within normal range. TLC depletion was detected in 27.2% of patients indicating visceral protein depletion and depressed cellular immunity which confirm previously published results.
The mean AST level was elevated and about 35.0% of patients had elevated values. This corresponds to the liver damage either directly by the drug and alcohol consumption or both or indirectly through liver infections. High prevalence of hepatitis C and hepatitis B infections were encountered and mostly results from the poor nutritional status, depressed cellular immunity in addition the IV route preference. These prevalences could be even higher, since hepatitis is not routinely screened for. Neither the mean GGT nor the serum bilirubin were elevated and 8.6% showed elevated GGT whereas 8.4% had elevated bilirubin.

Detoxification therapy appears to be a complicated process where failure is often encountered. The majority of our patients (69.1%) reported history of previous detoxification therapy at least once. Discomfort during therapy was reported by 11.3% of patients. The progress in the nutritional status as reflected by body weight gain showed a significant increase in the mean body weight (P<0.001). The mean serum albumin did not show significant change after therapy.

Drug addiction is a complex process resulting from many interacting factors. Education, lifestyle, family and work environment are important contributing factors. The spread of drug abuse stimulates highly contagious diseases and addiction has tremendous effects on the social, nutritional, health and productivity of individuals. Continuous and extensive prevention programs should be implemented and directed to all population categories. More research is required to identify the various determinants of drug addiction. Further studies are necessary to assess the detoxification therapy, understand the causes of failure and improve its efficiency.

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References