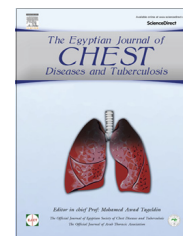


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Outcome of primary spontaneous pneumothorax: Could drug abuse have an effect?

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KEYWORDS

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Abstract *Background:* The progressively rising issue of drug abuse in Egypt among young adults could affect the outcome of a well known problem encountered in such age group as primary spontaneous pneumothorax (PSP).

Objective: To assess the impact of an oral drug abuse on the outcome of primary spontaneous pneumothorax.

Methods: This prospective observational study was conducted on 65 male patients, mean age 25.85 ± 5.08 , admitted to the inpatient chest department, Sohag University hospital with primary spontaneous pneumothorax, they were followed during their hospital stay and after hospital discharge for 6 months, in the period from February 2015 to June 2016, after written consent. All participants were subjected to thorough history taking, full clinical examination, chest X-ray and routine laboratory investigation. Toxicological screening for qualitative detection of drugs of abuse was done.

Results: Toxicological drug screening revealed positive results in 38.5% of cases. Length of stay was statistically significant longer in relation to smoking status and index which was not the case in estimation of length of stay in relation of drug abuse. Incidence of tuberculosis was significantly more within those patients with positive drug screen (40%) than those with negative screen (12.5%). Our observation is that drug abuse did not significantly affect the recurrence rate in the following 6 months.

Conclusion: Increased prevalence of drug abuse in Egypt may change the face of commonly diagnosed respiratory diseases in young adults as PSP.

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Abbreviations: PSP, Primary spontaneous pneumothorax; THC, Tetrahydrocannabinol.

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Introduction

Pneumothorax is defined as air in the pleural space—that is, between lung and the chest wall [1]. Spontaneous pneumothorax can be classified as either primary or secondary. Primary spontaneous pneumothorax (PSP), which is defined as a pneumothorax without underlying lung disease, predominantly occurs in young, thin males. It is usually caused by ruptured pleural blebs or bullae [2].

Psychoactive Substance (PAS) use is becoming commonly known for compromising the health and resulting in the death of millions of individuals every year. PAS include licit, illicit, and prescribed psychoactive medications [3]. In Egypt, drug dependence is considered one of the serious problems that worry both the people and government; however, epidemiological data on drug dependence are still few [4].

So we need special attention toward the growing problem of drug abuse and how it can not only be hazardous by itself but it can affect the outcome of other commonly diagnosed health issues in young population as spontaneous pneumothorax.

To our knowledge previous studies only referred either to traumatic pneumothorax due to attempted intravenous injection in the supraclavicular fossa, the so-called “pocket shot” [5] or to pneumothorax related to inhalational drugs, particularly crack [6].

Aim of the work

The aim of this study was to investigate the impact of an oral drug abuse on the outcome of primary spontaneous pneumothorax.

Subjects and methods

This prospective study was carried out on patients who admitted to the inpatient chest department, Sohag University hospital with primary spontaneous pneumothorax, they were followed during their hospital stay and after hospital discharge for 6 months, in the period from February 2015 to June 2016, after written consent.

Inclusion criteria

All patients admitted at chest department, Sohag university hospital with the diagnosis of primary spontaneous pneumothorax were included in the study period.

Exclusion criteria

Any patient with history suggestive of underlying lung disease or recent trauma was excluded.

All patients were subjected to:

- I. Full history taking and physical examination with recording of smoking status and smoking index, addiction history (regular and recent use of any illicit drugs). Main presenting symptom was also recorded.
- II. Plain Chest X-ray P-A view was done to confirm the diagnosis of PSP, size and side. It was also used to exclude the presence of underlying lung disease.
- III. Laboratory investigations:
 - (a) Routine laboratory investigations were done to all patients including complete blood picture, liver and kidney function.
 - (b) Repeated sputum analysis for acid fast bacilli (3 morning samples) was done for all patients.
 - (c) Urine samples were screened by dipstick test named ABON™ Multi-Drug which is a one step screening test panel used for qualitative detection of drugs of abuse which includes Tramadol, Opiate, tetrahydrocannabinol THC, Amphetamine, Barbiturate, Benzodiazepines. Only positive cases were confirmed by drug analyzer (Thermo Fisher CDx90).
 - (d) Pleural fluid analysis in any patient who developed pleural effusion after insertion of intercostal tube, pleural adenosine deaminase level and tuberculin skin test.

Statistical analysis

Data were analyzed using SPSS computer program version 22.0.

Quantitative data were expressed as mean \pm standard deviation, median and range. Qualitative data were expressed as number and percentage. The data were tested for normality using Kolmogorov–Smirnov test which significant the use of nonparametric tests as data weren't normally distributed. Nonparametric Mann–Whitney test was used for comparing two quantitative variables.

The Kruskal–Wallis test was used for comparison between more than two quantitative variables. Chi-Square test and Fisher's Exact test was used for comparison between qualitative variables. A 5% level was chosen as a level of significance in all statistical tests used in the study.

Results

This study included 65 male patients, their demographics, smoking status, smoking index and drug abuse history are shown in Table 1, it also shows that chest pain was a more common presenting symptom than dyspnea and the pneumothorax was mostly right sided and complete.

Results of drug screening are shown in Table 2, positive results found in 25 patients (38.5%) of cases. This means that 5 more patients discovered to have positive results in addition to the 20 patients who gave positive drug abuse history.

As regards outcome results, length of stay was recorded and compared according to smoking status, index and drug screening results (Table 3).

Table 4 shows that 10 patients out of 25 with positive toxicological screen proved to have active tuberculosis (40%) while only 5 patients out of 40 with negative screen found to have TB (12.5%). *P* value was significant. Note that all the five cases in the negative group and 8 cases in the positive group were diagnosed with tuberculous pleural effusion while the

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