Pattern of Chest Diseases among Addicts in Poison Control Center of Ain Shams University Hospitals

Thesis

Submitted for partial fulfillment of M.D degree
in Chest Diseases

By

Sherehan Elsayed Abd El-aaty
Master degree in Chest Disease from Ain Shams University

Under Supervision of

Professor/ Aya Mohmmed Abdel Dayem
Professor of Chest Diseases
Faculty of Medicine – Ain Shams University

Professor/Mahmoud Lotfy Sakr
Professor of Clinical Toxicology
Faculty of Medicine – Ain Shams University

Professor/Nehad Mohammed Osman
Professor of Chest Diseases
Faculty of Medicine – Ain Shams University

Ass.Professor/ Maryam Ali Abd El Kader
Assistant Professor of Chest Diseases
Faculty of Medicine – Ain Shams University

Chest Department
Faculty of Medicine
Ain Shams University
2019

بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

Acknowledgement

First, thanks to "Allah" for granting me the power to accomplish this work and without His willing I would have achieved nothing.

No words can describe my great appreciation, genuine respect and gratefulness for Prof. Aya Mohmmed Abdel Dayem, Professor of Chest Diseases, Faculty of Medicine, Ain Shams University for her valuable knowledge, continuous encouragement, sincere advice, tremendous support, and reviewing my work till the end.

I would like to express my profound gratitude and appreciation to Prof. Mahmoud Lotfy Sakr, Professor of Clinical Toxicology Faculty of Medicine, Ain Shams University for his valuable knowledge, guidance and support throughout this work.

I would like to express my sincere gratitude and appreciation to Prof. Nehad Mohammed Osman, Professor of Chest Diseases, Faculty of Medicine, Ain Shams University for her great effort, valuable knowledge, generous help, meticulous revision and guidance that enabled me to accomplish this work.

I am very grateful to Ass. Prof. Maryam Ali Abd El Kader, Assistant professor of Chest Diseases, Faculty of Medicine, Ain Shams University for her cooperation and support throughout this work.

The candidate

Sherehan ElSayed

Abstract

Background: Drug addiction resulting in serious pulmonary complications. Thoracic complications of drug addiction vary depending on the type and the route of administration of the drug that has been abused.

Aim of the work: to study the pattern of chest diseases among addicts in poison control center of Ain Shams University Hospitals.

Patients and methods: Two Hundred addict patients were selected from Poison Control Center of Ain Shams University Hospitals in duration between June 2016 to June 2018. Some patients with pulmonary complications referred to Abbasia Chest Hospital.

Results: Two hundred addict patients enrolled in this study, 100 addicts with drug overdose with no pulmonary complications were excluded and the other 100 patients, 99 patients were males and only 1 female, mean age was 39.91±10.75 years. Sixty three percent of drug addicts were cannabis addicts, 27.0% were opiate addicts, 8.0% were polysubstance abusers (PSA) and 2.0% were alcohol addicts. Pulmonary tuberculosis (TB) was the most common pulmonary complication of all drug addicts. There was statistically significant correlation between the type of drug addiction and the pulmonary complications. Pulmonary TB was the most common among cannabis addicts as well as PSA. Parenchymal lung diseases (pneumonia and lung abscess) were the most common among opiate and intravenous (IV) drug addicts. No significant difference between different types of drugs as regard outcome of the patients, mortality represents 3.0% of all drug addicts.

Conclusion: Many pulmonary complications associated with drug addiction. Achievement of early diagnosis and treatment by proper counseling and therapeutic programs.

Key Words: Chest disease; Drug addiction, pulmonary complications

List of Contents

List of Abbreviations

Abbr.		Full-term
°C	**:**	Celsius
µL	**:**	Microliter
ABG	**:**	Arterial blood gases
AFB	**:**	Acid fast bacilli
AIDS	**:**	Acquired Immune Deficiency Syndrome
ALT	**:**	Alanine transaminase
ARDS	:	Acute respiratory distress syndrome
ASAM	:	American society of addiction medicine
AST	**:**	Aspartate aminotransferase
AUD	**:**	Alcohol use disorder
BAL	**:**	Bronchoalveolar lavage
CAP	**:**	Community acquired pneumonia
CBC	**:**	Complete blood count
CBD	**:**	Cannabidiol
CNS	**:**	Central nervous system
CO2	**:**	Carbon dioxide
COC	**:**	Cocaine
COPD	**:**	Chronic obstructive pulmonary disease
CT	**:**	Computed tomography
DAH	**:**	Diffuse alveolar hemorrhage
DLCO	**:**	Diffusing capacity of the lung to carbon monoxide
DM	**:**	Diabetes Mellitus
DNA	**:**	Deoxyribonucleic acid
DSM-IV-TR	**:**	Diagnostic and Statistical Manual of Mental Disorders, fourth Edition, Text Revision

List of Abbreviations (Cont.)

Abbr.		Full-term
DVT	**:**	Deep venous thrombosis
E-cig	**:**	Electronic cigarettes
FDA	**:**	Food and drug administration
FEV1	**:**	Forced expiratory volume in one second
FVC	**:**	Forced vital capacity
GOLD	**:**	Global initiative for chronic obstructive
HBV	**:**	Hepatitis B virus
HCV	**:**	Hepatitis C virus
HIV	**:**	Human immunodeficiency virus
ICD	**:**	International Classification of Diseases
ICU	**:**	Intensive care unit
IHME	**:**	Institute of Health Metrics and Evaluation
IL	**:**	Interlukin
IQ	**:**	Intelligence quotient
IV	**:**	Intravenous
KFT	**:**	Kidney function test
LFT	**:**	Liver function test
LLN	**:**	Lower limit of normal
mg	**:**	Milligram
mg/kg	**:**	Milligram/kilogram
mmol/l	**:**	Millimoles per litre
MOP	**:**	Mu-opioid peptide
MRSA	**:**	Methicillin-resistant Staphylococcus aureus
MTB	**:**	Mycobacterium tuberculosis
MV	**:**	Mechanical ventilation
NCPE	**:**	Non-cardiogenic pulmonary edema
ng/ml	**:**	Nanograms per milliliter

List of Abbreviations (Cont.)

Abbr.		Full-term
NICE	**:**	National Institute for Health and Clinical Excellence
NIDA	**:**	National Institute on Drug Abuse
O2	**:**	Oxygen
PCP	**:**	Pneumocystis carinii pneumonia
PSA	**:**	Poly substance abusers
PWUD	**:**	People who use drugs
RF	**:**	Respiratory failure
RF I	**:**	Respiratory failure type I
RF II	**:**	Respiratory failure type II
SAMHSA	**:**	Substance Abuse and Mental Health Services Administration
SNRI	**:**	Serotonin–norepinephrine reuptake inhibitor
SPE	**:**	Septic pulmonary embolism
SPSS	**:**	Statistical Package for the Social Sciences
SUD	**:**	Substance use disorder
TB	**:**	Tuberculosis
THC	**:**	Tetrahydrocannabinol
TLC	**:**	Total leukocyte count
WHO	**:**	World Health Organization

.

List of Figures

List of Tables

Introduction

Illicit drug use represents a worldwide health problem, involving about 5% of the world's adult population and contributing to crime, insecurity and the spread of human immunodeficiency virus (HIV). Each year, between 99,000 and 253,000 deaths are attributed to the use of illicit drugs, accounting for 0.5–1.3% of all-causes of mortality in 15–64 year-old adults.

Illicit drug use may acutely or chronically alter organ function, leading to life-threatening conditions or persistent injuries. Pulmonary involvement accounts for a major part of illicit drug-related morbidities.

Drug-related insults to the lung result in different kind of injuries into lung tissue including acute lung injury, cardiogenic edema, pneumonitis, alveolar hemorrhage, cryptogenic organizing pneumonia, vasculitis, fibrosis, emphysema, vascular disease, septic embolization, and pleural effusion. Bacterial infections represent the most common pulmonary complications related to illicit drug use.

(Mégarbane and Chevillard, 2013).

Damage to lungs may occur from systemic as well as inhalational exposure to illicit drugs. Several mechanisms of injury may be involved including direct chemical reactivity, production of reactive oxygen (O2) species, inflammatory processes due to the activation of alveolar macrophages and neutrophils, and specific immune response ***(Pritchard, 2001).***

Among all pulmonary complications related to illicit drugs, aspiration pneumonia probably represents the most

common one, usually in relation to the abuse of sedative drugs like opiates ***(Marik, 2001).***

Intravenous (IV) drug users were also independently associated with the development of complicated Para pneumonic effusion and empyema in community acquired pneumonia (CAP) patients ***(Chalmers et al., 2009).***

People who use and inject illicit drugs are at high risk of contracting tuberculosis (TB), whether or not they are infected with HIV. Studies conducted before and after the emergence of HIV infection show that, when compared with the general population, people who use illicit drugs have a higher risk of getting TB infection ***(Getahun et al., 2012).***

Pulmonary edema is one of the critical complications of heroin overdose and may result in sudden death or necessity for admission to hospital. Pulmonary edema is present in nearly all fatal cases of opioid overdoses. Typically occurring >3 h after the last opioid use ***(Dinis-Oliveira et al., 2012).***

Like tobacco, cannabis exhibits irritating effects, resulting in mucus hypersecretion and inflammation-triggered edema in the tracheobronchial mucosa. However, contradictory reports have been published regarding its real contribution to increasing acute bronchitic episodes and development of chronic obstructive pulmonary diseases (COPD), pneumothorax, respiratory infections including TB, and lung cancer ***(Tashkin, 2001).***

Aim of the Work

The study aimed to assess the Pattern of chest diseases among addicts in poison control center of Ain Shams University Hospitals.

Drug Addiction

Definition:

Addiction is a complex condition, a brain disease that is manifested by compulsive substance use despite harmful consequence. People with addiction [severe substance use disorder (SUD)] have an intense focus on using a certain substance(s), such as alcohol or drugs, to the point that it takes over their life. They keep using alcohol or a drug even when they know it will cause problems. Yet a number of effective treatments are available and people can recover from addiction and lead normal, productive lives ***(Ranna, 2017).***

SUD, also known as substance dependence, is defined by the Institute of Health Metrics and Evaluation (IHME) based on the definition within the World Health Organization's (WHO) International Classification of Diseases (ICD-10). SUD include alcohol and all illicit drugs (whether prescribed or otherwise) including opioids, cocaine, amphetamine and cannabis. This classification does not include tobacco.

A definite diagnosis of dependence should usually be made only if three or more of the following have been present together at some time during the previous year:

(a) A strong desire or sense of compulsion to take the substance.

(b) Difficulties in controlling substance-taking behavior in terms of its onset, termination, or levels of use.