

Audiological Assessment in Patients with Chronic Obstructive Pulmonary Disease

Thesis

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List of Abbreviations

ABR	Auditory Brainstem Response
COPD	Chronic Obstructive Pulmonary Disease
CRP	C-reactive protein
dB	Decibel
DLCO	Diffusion capacity of the lungs for carbon monoxide
EP	Electrochemical Potentials
ESR	Erythrocyte Sedimentation Rate
FEV1	forced expiratory volume in 1st second
FVC	Forced Vital Capacity
GERD	Gastroesophageal reflux disease
GOLD	Global Initiative for Chronic Obstructive Lung Disease
HIV	The human immunodeficiency virus
HZ	Hertz
ICU	Intensive Care Unit
ME	Middle Ear
NHANES 3	The third National Health And Nutrition Examination Survey
NO	Nitric Oxide

PO₂	Partial pressure of oxygen
RA	Room air
ROS	reactive oxygen species
TEAC	Trolox-equivalent antioxidant capacity
TM	Tympanic Membrane
TNF	Tumor necrosis factor
WBC	white blood cells
WHO	World Health Organization
YLD	years of living with disability

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INTRODUCTION

COPD is a common preventable and treatable disease, is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airway and lung to noxious particles or gases Worldwide, the most commonly encountered risk factor for COPD is tobacco smoking (*GOLD, 2015*).

Cigarette smoking has become a common tendency worldwide. In general, tobacco is consumed by approximately 1.3 billion of the world's population (*Shafey et al., 2003*).

Many of the health effects of smoking depend on the exposure history, which includes the age at which the smoking began, the number of cigarettes which were smoked per day, the degree of inhalation, and the cigarette characteristics such as the tar and the nicotine content (*Peto, 1986*).

Smoking has been associated with its effect on the senses, which includes the sense of hearing (*Cruickshankset al., 2003*).

AIM OF THE WORK

This study is designed for the audiological assessment of patients with COPD in an attempt to investigate the effect of smoking on hearing, to characterize the type of hearing loss found in those patients, and to further correlate the hearing loss found with the COPD disease severity.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Definition

Chronic Obstructive Pulmonary Disease (COPD), a common preventable and treatable disease, is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients. The chronic airflow limitation characteristic of COPD is caused by a mixture of small airways disease (obstructive bronchiolitis) and parenchymal destruction (emphysema), the relative contributions of which vary from person to person (***GOLD, 2015***).

COPD, the fourth leading cause of death in the world, represents an important public health challenge that is both preventable and treatable. COPD is a major cause of chronic morbidity and mortality throughout the world; many people suffer from this disease for years and die prematurely from it or its complications. Globally, the COPD burden is projected to increase in the coming decades because of continuous exposure to COPD risk factors and aging of the population (***GOLD, 2015***).