# INTRODUCTION AND RATIONALE

The auditory channel is one of the most important avenue through which information is received about the environment **(Solan, 1988),** the cochlea translates sound energy into a form suitable for stimulating the auditory nerve endings, it also codes acoustical parameters so that the brain can processes the information contained in the sound stimulus **(Lousbury –Martin et al.,1991a)**.

The recent records in Egypt according to latest conference of national committee of mother and childhood **(April, 2001)** reported that about thirteen million are smokers, (439 thousands child less than fifteen years old &74 thousands less than ten years old) . Meanwhile the level of smoking in the developed countries is decreasing 15% / year relative to the increase in Egypt 8% per year, this increase lead to decrease in production among workers by a percent of 25 to 27 % which leads to loss of around 34 million Egyptian pounds.

Smoking is incriminated for 25 different types of diseases on top of the list cancer lung 68%, also cancer larynx which increases to about 6%. Moreover cancer bladder increased up to 80 % in smokers ,added to these diseases, ulcer of stomach and deuodenum which represents about 12 %. Regarding cardiovascular disorders, anginal attacks of about 70 % , strokes of about 78% these increases the level of diabetes up to 75% . Furthermore smoking lead to teratogenic effects to newborns of smoking pregnant women & that cigarette smoking lead to death of newborn infant which represents about a rate of 4/ thousand infants , **( Cogna, 2001)** .

Clinical studies have suggested that cigarette smoking may be associated with hearing loss (Karen, et al., 1998), it was reported that nicotine found in tobacco products is highly addictive. Nicotine immediately constricts the blood flow to the ear and can last up to three weeks **(Naguli,2001).** Smoking also reduces the oxygen tension of the blood causing local hypoxia, which in turn may affect the cochlear function **(Brown,1984).**

Otoacoustic emission is low intensity sounds coming from the cochlea **(Kemp,1978),** and can be recorded with or without acoustic stimulation **(Wilson,1980a).** Observation suggested that otoacoustic emissions are produced by the motile activity of the outer hair cells **(Bronwell,1990),** thus can provide an objective method to study cochlear function among smokers.

Otoacoustic emission has shown to be an objective and non invasive tool to study cochlear function **(Martin, Lousubry –Martin.1993),** also it is easy to perform ,sensitive and has high test- retest reliability .

So this work was undertaken to study cochlear status among cigarette smokers.