

functions beginning at approximately 35 years of age^(7,8,9,10).

A number of studies have been conducted in Europe, united state, Asia, and Mediterranean population to establish reference values for pulmonary functions in healthy subjects. To the best of our knowledge, no study was conducted in this country involving young and elderly subjects.

The aim of the present study was, thus to determine the spirometric reference formulas for a sample of young and elderly subjects living in Baghdad, and to compare the measurement of pulmonary function in those subjects with other available standards such as ECSC [European Community for Coal and Steel]⁽¹¹⁾ published in 1993, predicted values of lung indices unchanged (almost universally applied in Europe), white American population (Knudson et al)⁽¹²⁾, Mediterranean population (Roca J et al)⁽¹³⁾, and Caucasian populations (Crapo et al)⁽⁶⁾.

Methods

In a total of two hundred and two healthy non-smoking subjects who met the inclusion criteria were participated in the study. Yet only one hundred eighty - two [103 females and 79 males] with an age ranged between 20 and 60 years were completed the pulmonary function tests and included in the study. The age of the male subjects was 37.10 ± 9.84 years, and the females 41.30 ± 9.44 years. The rest of the subjects were not able to perform the pulmonary function tests correctly and thus were excluded.

The lung function testing was performed in the lung function unit-at AL-Kindy Teaching Hospital, Baghdad-IRAQ. The standing height and weight was measured for all the subjects. The tested subjects were non smokers with

no history of symptoms of cardiovascular or respiratory diseases that required treatment. The forced expiratory maneuvers including forced vital capacity (FVC) and forced expiratory volume in the first second (FEV1) were recorded using "Master lab body pro a universal lung function testing station- Version 4.5" in conjunction with 3 PC software. The spirometer was calibrated with a calibrating syringe. A minimum of three acceptable and reproducible maneuvers were obtained, according to the standards recommended by the American Thoracic Society [ATS].

Prediction Equation

Four sets of prediction equations were used in this study. Predicted values were derived from these equations described regression equations commonly used in Caucasian subjects. "The Crapo" equations were derived from 251 non smoking American subjects, aged 15-19 years and residing in Utah 1400 m above sea level, using a water seal spirometer (8). The Knudson equations were obtained from 746 American nonsmoking subjects, aged 8-90 years and residing in Arizona, using a Pneumotachygraph device (9). The European Community for Steel and Coal (ECSC) equations are summary equations derived for Caucasian subjects aged 5-70 years. Roca- equations were obtained from 870 adult subjects, aged 20-70 years and living in Barcelona area. Roca-equations provides reliable spirometric equations from a large Urban Mediterranean sample which were lacking so far in the literature. All four equations and this study predict FEV-1, and FVC based on gender, age, and height of a subject as primary variables. All equations, except the