Chapter 4
The Respiratory System

Respiratory diseases are the most common cause of illness, at all ages, but account for a relatively small proportion of all hospital admissions. Acute respiratory infections and asthma are the most frequent cause of hospitalization in the younger patient, with chronic bronchitis, cancer of the lung and broncho-pneumonia in the older. Twenty per cent of all deaths in Britain and the USA are from respiratory disease, but with advancing age it is from pneumonia, chronic chest disease and lung cancer in that order of frequency.

Diagnosis of disorder will depend on symptoms, history of the patient and examination of:

(A) respiration rate and character,
(B) chest sounds (auscultation),
(C) chest X-ray,
(D) sputum,
(E) peak expiratory flow rate,
(F) blood gas analysis.
Common symptoms of respiratory disease will be:

1. cough,
2. dyspnoea (breathlessness),
3. sputum production (and/or haemoptysis),
4. chest pain,
5. cyanosis (blue discoloration of face, lips and fingertips),
6. clubbing of the fingertips.

(A) RESPIRATION RATE AND CHARACTER

Control of respiratory movements is maintained by a centre in the medulla of the brain. It is sensitive to carbon dioxide in the blood, excess of which stimulates respiration and to the blood oxygen level, lack of which (anoxia) further stimulates the breathing rate. A rapid rate is thus brought about by the demands of exercise, an alteration in blood gas levels, an increase in the metabolic rate (as in any generalized infection and fever) and generalized disease or disorder of the respiratory system. Dyspnoea means difficult breathing, an unpleasant awareness of the act of breathing. It is usually due to oxygen-lack, thus in acute respiratory disease such as pneumonia there may be rapid shallow breathing.

In chronic bronchitis and emphysema the mechanics of respiration, the bellows function of the lungs, has suffered and the patient is dyspnoeic and distressed. His rib cage lifts instead of expanding properly, and his respiratory efforts involve the use of the neck muscles rather than the diaphragm.

In lung fibrosis the patient is breathless on slight exertion, but not necessarily dyspnoeic at rest.

Dyspnoea may be due to the pain of pleurisy, the patient being afraid to take a deep breath.

Wheezeing due to bronchospasm accompanies the breathlessness of asthma, and the patient has special difficulty in expiration.

Stridor is noisy inspiration from inflammation or obstruction of the larynx, trachea or large bronchi.

Periodic breathing or Cheyne–Stokes breathing is where a period of apnoea (no breathing) occurs, then, as carbon diox-