



FIGURE 18-3: Chronic obstructive pulmonary disease (COPD). (A) Normal alveoli. (B) Destructive changes of COPD.

than is prescribed can actually shut off this adaptive mechanism and cause the patient's breathing to stop or slow markedly, thus further lowering the O₂ level in the blood.

Additionally, too much O₂ can damage the eyes, especially those of premature infants. Therefore, we give the lowest levels of O₂ that produce the results that the prescriber desires.

Respiratory Stimulants

For patients who have problems with **apnea** (periods of breathing cessation), medications to stimulate the respiratory center of the brain may be prescribed. The typical patient is a premature infant whose brain is not developed to the degree of a normal newborn. These infants require a nudge to breathe, and that is done with medications such as caffeine citrate (Cafcit) or theophylline. Many premature infants take these medications for many months after release from the neonatal intensive care unit. In the adult patient, the reason for sleep apnea is usually a structural problem causing an obstruction. Medication has not been demonstrated to help with this situation. Surgery, lifestyle change such as weight loss, or an assistive breathing apparatus used to open the obstructed airway are common interventions.

Smoking Cessation

Because tobacco smoking is addictive and causes so many illnesses (e.g., emphysema, lung cancer, and bronchitis) in both smokers and those around them, medications have been developed to facilitate smoking cessation. Combined with hypnosis and behavioral therapy, these medications can be extremely effective. It is very difficult to quit completely and suddenly ("cold turkey"); therefore, smoking cessation aids, which contain the drug nicotine, deliver small, consistent doses of nicotine to help the individual gradually withdraw from nicotine use. This treatment is usually administered via a transdermal patch (NicoDerm) or in gum (Nicorette). Be sure to educate patients and reinforce for them that they cannot smoke while using nicotine patches, to avoid a nicotine overdose. In addition, patients should not wear nicotine patches when they are inside magnetic resonance imaging (MRI) equipment because patients have been reported to suffer burns at the site of the patch. Other routes for nicotine include inhalation (Nicotrol) and nasal spray (Nicotrol).

Another drug that may be prescribed as an oral medication is bupropion hydrochloride (Budeprion, Wellbutrin, Zyban). This drug was originally developed as an antidepressant, but it has been found to have significant benefit in the battle to stop smoking. However, it has serious risks of suicidal ideation and completion. The potential benefits of this medication should therefore be weighed heavily against the risks when this drug is considered. Patient education must be thorough with each prescription of this drug.

A newer oral medication used with behavior modification that works to convince your brain that smoking is not pleasurable is varenicline (Chantix). The patient may smoke during treatment but slowly loses the desire to do so.