Respiratory diseases in pregnancy

Series editor: A J Knox

Introduction

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Respiratory diseases are an important cause of morbidity and mortality in pregnant women. Chronic lung diseases such as asthma and cystic fibrosis may present unique management problems in pregnancy, and others such as pneumonia and tuberculosis can target pregnant women just as they target non-pregnant women.¹ Some diseases, such as pulmonary embolism, may be more likely because of the pregnancy itself. The purpose of this review series is to cover the important lung diseases that are likely to be encountered in pregnancy. The five articles in the series have been written by acknowledged experts in the field and I hope will provide an important source of knowledge for respiratory physicians and other specialists concerned with the management of these patients. It is important that respiratory conditions are treated adequately in pregnancy, thereby giving the best possible chance of an optimal outcome for both the mother and unborn child.

A number of the physiological changes which occur during pregnancy affect the lungs and this may alter pulmonary function. Ventilation increases by 20–50% at the end of the first trimester and this is sustained throughout pregnancy, causing a mild compensated respiratory alkalosis with P_{CO_2} slightly lower and P_{O_2} slightly higher than normal. This is an adaptation to cope with the increased oxygen consumption and increased carbon dioxide burden caused by the fetus and is thought to be mediated by the stimulatory effect of circulating progesterone on the respiratory centre.

Other alterations in gas exchange occur, such as widening of the alveolar arterial oxygen gradient which is most marked in the supine position. Enlargement of the abdominal contents and upward displacement of the diaphragm causes a reduction in functional residual capacity and a decrease in residual volume. The reduction in functional residual capacity causes closure of small airways at the lung bases during normal tidal breathing, resulting in ventilation perfusion mismatch and reduced gas exchange. Diaphragmatic excursion, vital capacity, and total lung volume are unchanged. These alterations are of little consequence to a normal woman during pregnancy but, in a patient with diminished respiratory reserve, they can contribute to pulmonary decompensation.¹

Although in the majority of cases the treatment of respiratory diseases in pregnancy should follow standard guidelines, there are some important exceptions such as the use of warfarin in pulmonary embolism. There are often concerns about the use of a number of drugs in pregnancy due to potential problems with placental transfer to the fetus, and it is hoped that the articles in this series will highlight areas where that concern is justified and areas in which it is not. I hope you find the series useful.

¹ Knox AJ, Petkova D, Johnson S. Respiratory disease in pregnancy. *Obstet Gynaecol* 1999;9:69–74.

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