72.2 mg/g dry weight respectively compared with saline controls (42.8 mg/g) (n=5).

Infusion of oxotremorine (0.34 μg/ml) into the isolated lung for 10 min between the 5th and 6th washes failed to alter the PC content. This was significantly ($2P<0.05$; Mann Whitney U-test) raised from 3.66 (±0.6) to 4.80 (±0.8) mg/g (n=6) by a 10 min infusion of adrenaline (3.4 μg/ml).

The present results suggest that oxotremorine causes secretion of stored lung surfactant by an indirect mechanism involving adrenaline release from the adrenal medulla and subsequent activation of lung β-adrenoceptors.

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Effects of diazoxide on total lung resistance

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We have shown previously that diazoxide is an effective bronchodilator in guinea pigs (Biggs, Demajo & Peterson, 1977). However, during the course of these experiments we observed an initial dose-related increase in total lung resistance (R_{TL}) in animals given diazoxide. In this paper we report the results of investigations of the initial effects of diazoxide on dynamic lung compliance (C_L) and pulmonary flow resistance (R_L) in anaesthetized guinea pigs, using a method similar to that described by Mead & Whittenberger (1953). In order to eliminate interference from the respiratory muscles, we administered pancuronium bromide (0.1 mg/kg). This drug had no observable effects on C_L or R_L and all of the following experiments were performed in the presence of this drug.

Diazoxide (40 mg/kg), given intravenously, caused a small decrease in C_L and a much more marked increase in R_L. Both parameters usually returned to normal within a period of 4 to 5 min. Bilateral vagotomy or pretreatment of the animals with atropine (0.5 mg/kg) intravenously was without effect on the decrease in C_L and the increase in R_L produced by diazoxide, suggesting that neither vagal reflexes nor a muscarinic action of acetylcholine is involved in the changes induced by diazoxide. In animals pretreated with mepyramine (0.1 mg/kg), intravenously, the increase in R_L produced by diazoxide was abolished but the decrease in C_L was unchanged. In animals pretreated with indomethacin (0.1 mg/kg) or aspirin (1 mg/kg), intravenously, the decrease in C_L was abolished but the increase in R_L was unchanged.

If it is assumed that changes in R_L result mainly from actions on the trachea and large bronchi, whereas C_L is influenced mainly by actions at the level of the respiratory bronchioles and alveoli (Nadel, 1965), then it can be inferred that diazoxide initially increases R_{TL} by two separate mechanisms. Thus the results suggest that diazoxide causes an initial increase in R_L by a direct or indirect histamine-like action on the large airways, an effect that can be blocked by mepyramine. In contrast, the initial decrease in C_L appears to involve the release of prostaglandins or prostaglandin-like substances from the small airways, an action that can be blocked by indomethacin or aspirin.

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A pharmacological study of the mediators released following anaphylaxis of the sensitised hind quarters of the guinea-pig

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Sensitized hind quarters of guinea-pigs were perfused as described for rats and guinea-pigs by Feldberg & Mongar (1954) through the abdominal aorta and the effluent was collected from the vena cava. The effluent from the hind quarters was superfused over the following three bioassay tissues; rat stomach strip (RSS), rat colon (RC) and the longitudinal muscle strip of the