

DIRECT EFFECTS OF MECONIUM ON *IN VITRO* AIRWAY REACTIVITY TO HISTAMINE AND ACETYLCHOLINE

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Background: To better understand the mechanisms contributing to altered airway reactivity in meconium aspiration syndrome, this study ascertained if there is any meconium dose-dependent response of *in vitro* tracheal and lung tissue smooth muscle reactivity to histamine and acetylcholine.

Material and methods: Tracheal and lung tissue strips from healthy guinea pigs were incubated for 1 hour in organ chambers with three concentrations of human meconium (1, 2, and 5 mg/ml), while the control strips were incubated in pure Krebs-Henseleit solution. Thereafter, the contractile responses to cumulative doses of histamine and acetylcholine (10^{-8} - 10^{-3} M) were recorded.

Results: Cumulative doses of histamine and acetylcholine increased the reactivity of tracheal and lung tissue strips in all groups ($P < 0.05$). Tracheal reactivity to histamine and acetylcholine (10^{-5} - 10^{-3} M) was higher in the highest meconium concentration compared with the two lower concentrations of it ($P < 0.05$). Lung tissue reactivity slightly decreased with increasing meconium concentration, however, between-group differences were not significant.

Conclusions: Although there was no clear correlation between the contractile response and meconium concentration, tracheal reactivity increased with increasing meconium concentration, while lung tissue reactivity had a tendency to decrease. The as yet unclear mechanisms influencing the airway smooth muscle contractile response to meconium should be further studied.

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