

Publication

A three-generation study on the association of tobacco smoking with asthma

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Mothers' smoking during pregnancy increases asthma risk in their offspring. There is some evidence that grandmothers' smoking may have a similar effect, and biological plausibility that fathers' smoking during adolescence may influence offspring's health through transmittable epigenetic changes in sperm precursor cells. We evaluated the three-generation associations of tobacco smoking with asthma.; Between 2010 and 2013, at the European Community Respiratory Health Survey III clinical interview, 2233 mothers and 1964 fathers from 26 centres reported whether their offspring (aged ≤ 51) had ever had asthma and whether it had coexisted with nasal allergies or not. Mothers and fathers also provided information on their parents' (grandparents) and their own asthma, education and smoking history. Multilevel mediation models within a multicentre three-generation framework were fitted separately within the maternal (4666 offspring) and paternal (4192 offspring) lines.; Fathers' smoking before they were 15 [relative risk ratio (RRR) = 1.43, 95% confidence interval (CI): 1.01-2.01] and mothers' smoking during pregnancy (RRR = 1.27, 95% CI: 1.01-1.59) were associated with asthma without nasal allergies in their offspring. Grandmothers' smoking during pregnancy was associated with asthma in their daughters [odds ratio (OR) = 1.55, 95% CI: 1.17-2.06] and with asthma with nasal allergies in their grandchildren within the maternal line (RRR = 1.25, 95% CI: 1.02-1.55).; Fathers' smoking during early adolescence and grandmothers' and mothers' smoking during pregnancy may independently increase asthma risk in offspring. Thus, risk factors for asthma should be sought in both parents and before conception.; European Union (Horizon 2020, GA-633212).

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