

Short Communication

THE EFFECT OF MATERNAL AGE ON CHILDHOOD ASTHMA

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ABSTRACT

Some studies indicate that children born to younger mothers are at a higher risk of wheezing and asthma. To investigate the maternal age associated with asthma in children, a case-control study on 310 asthmatic and 310 non-asthmatic children aged 3 to 4 years was organized during a one-year period. A questionnaire was used to obtain information about the child's personal susceptibility factors, family history of asthma and past infectious diseases, environmental exposure, and sociodemographic characteristics. In comparison with children of mothers who were 30 years of age or older, children of mothers aged 26-30 years had an adjusted odds ratio of 0.99 (95% CI = 0.37-2.64) of developing asthma; children of mothers between 21 and 25 years had an odds ratio of 1.60 (95% CI = 0.47-5.40), and those whose mothers were 20 years old or younger had an odds ratio of 6.74 (95% CI = 1.23-36.72). Younger mothers have children with a greater risk factor of childhood asthma.

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Key Words • Asthma • maternal age • socioeconomic factors • environmental exposure • risk factors

Introduction

Asthma, a chronic disease of the respiratory tract, affects approximately five percent of the U.S. population,¹ including an estimated 4.8 million children.²

Little is known about the relation between maternal age and early childhood respiratory diseases. Four recent studies, however, found that children of younger mothers were at higher risk of having a respiratory condition such as wheezing or asthma.³⁻⁶

The aim of the current study was to assess the relation between maternal age and the incidence of asthma among 3-4-year old

children.

Materials and Methods

A case control study was carried out in Tehran, Iran, between April 1999 and April 2000. The maternal age was studied in relation to the incidence of asthma among 2-3-year-old children. The cases comprised 310 children who were diagnosed with asthma for the first time. The controls (n=310) were chosen from family allowance files and were matched with the case children by age.

A questionnaire was filled in and included the child's personal susceptibility factors, a family history of asthma, the child's past infectious diseases, environmental exposure at home, and socio-demographic characteristics.

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Table 1: Socioeconomic features of mothers according to their age for 620 children from a case-control study of asthma (Percentages of women in the specified category are shown).

Socioeconomic features	P-value	Maternal age(Yrs)			
		≤20	21-25	26-30	>30
Education	0.000	Percentage of women			
Primary		64.0	26.3	29.5	36.1
Secondary		36.0	67.2	60.0	45.2
University		0.0	6.5	10.5	18.7
Occupation	0.8568				
Housewife		96.0	82.8	81.6	69.9
Specialist		4.0	1.6	24.4	13.7
Clerk					
Living Status	0.3421				
Tenant		60.0	59.7	55.8	44.3
Owner		40.0	40.3	44.2	55.7
Persons/room	0.000				
≤1		24.0	44.1	52.1	53.9
>1		76	55.9	47.9	46.1
Breastfeeding	0.8902				
Yes		80.0	80.1	71.4	25.5
No		20.0	19.9	28.6	47.7
Only child	0.164				
Yes		84.0	53.8	27.0	17.4
No		16.0	46.2	73.0	82.6
Maternal Asthma	0.0183				
Yes		0.0	1.1	5.3	5.9
No		100.0	98.9	94.7	94.1
History of Pneumonia	0.0398				
Yes		8.0	18.3	19.5	28.8
No		92.0	81.7	80.5	71.2
Tonsillectomy	0.4767				
Yes		4.0	0.5	6.8	9.6
No		96.0	99.5	93.2	90.4
Smoking in Home	0.3626				
Yes		44.0	37.6	36.3	34.7
No		56.0	62.4	63.7	65.3

EPI-INFO and SPSS (version 9) were used for statistical analysis. Conditional logistic regression was used to analyze the matched data.

Results

The mean maternal age at birth was 29.2 years (standard deviation=6.3 years). In the group aged 20 years and younger, the age

distribution in years was as follows: 18 (N=3) 19 (N=1) and 20 (N=21). In comparison with women in older age groups, there were more women in the young age category who had a low level of education. The majority of younger women in comparison with older ones were tenants, and the studied children were more often their only child. Younger women did not report any previous illness in their child in comparison with older women.

Table 1 shows socioeconomic features of mothers according to their age. The risk of asthma increased with decreasing maternal age (odds ratio (OR)=6.74, 95% confidence interval (CI) 1.23-36.72).

Discussion

These results are consistent with the hypothesis that young mothers have children with a greater risk of asthma⁶. However, some alternative explanations for the association, in particular environmental, social, and familial susceptibility factors, could not be eliminated.

These findings support the role of the mother's biological maturation on the outcome of pregnancy and subsequent child health status. Other results offer some evidence of an indirect relationship between maternal age and childhood respiratory problems mediated through pregnancy outcome.

In a recent study, birth weight and other relevant risk factors were controlled. In this study, infants requiring mechanical ventilation due to prematurity after birth were shown to have an increased prevalence of asthma at ages 9-11 years.⁷

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