

Is cesarean delivery a risk factor for atopic allergic disease in children

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Introduction

The rate of both childhood allergic diseases and delivered by caesarean section has been increasing all over the world for the last 30-40 years. Our objective was to investigate the relationship between delivered by caesarean section and atopic allergic disease in prepubertal children, and to compare children with atopic allergic diseases with non atopic healthy children.

Methods

A prospective cross sectional study of 216 prepubertal children aged 2-10 years was performed; the participants were 112 atopic children with physician-diagnosed allergic disease (allergic rhinitis and asthma) (serum total IgE level >100 kU/l and eosinophilia >4%, or positivity to at least one allergen in skin test) and 104 non atopic healthy age- and sex-matched controls. Data were collected between October 2022 and November 2022 at the Pediatric General and Pediatric Allergy Outpatient Clinics of Bezmialem Vakıf University Hospital.

Results

Our study demonstrated that 85 (39.5%) of children were delivered by caesarean section, 131 (60.5%) were delivered by normal vaginal delivery. In all age groups, 38.4% of the children in the atopic allergic disease group and 40.4% of the healthy group were born by cesarean section (p=0.442). No significant association between caesarean section delivery and atopic allergic disease in childhood was found in our study [odds ratio (OR)=0.98, 95% confidence interval (CI)=0.64-2.87, P=0.454].

Characteristics	Atopic Children	Healthy children	p* Value
	n (%), mean ±SD, (range)	n (%), mean ±SD, (range)	
Children, n	112	104	
Gender, n (%)			
Female	59	63	
Male	53	41	
Age (years)	6.67±2.4 (3-10)	6.91±2.4 (3-10)	0.862
Weight, kg	26.9±11.8 (11.6-59)	22.9±9.4 (11.3-49.5)	<0.001
Weight, z-score	0.56±1.15 (-3.50-5.00)	0.29±1.19 (-2.98-4.62)	<0.001
Height, cm	119.07±16.22 (92-152)	114.9±13.5 (93-153)	<0.001
Height, z-score	0.60±0.96 (-2.20-3.3)	0.36±1.03 (-2.40-3.78)	0.006
BMI, kg/m ²	16.9±3.1 (14.7-29.4)	16.23±2.59 (12.0-30.7)	0.003
BMI-z score	0.26±1.32 (-3.50-3.34)	0.06±1.29 (-3.40- 4.15)	0.016

The Mann-Whitney U-test was used for non-normally distributed data, p<0,05

Characteristics	Atopic Children	Healthy children
	n (%), mean ±SD	n (%), mean ±SD
Children, n	112	104
Type of Delivery		
Caesarean section	43 (38.4%)	42 (40.4%)
Vaginal delivery	69 (61.6%)	62 (59.6%)
Birth weight (gr)	3273±470	3280±479
Parental smoking (n, %)		
Yes	65 (58%)	46 (44.2%)
No	47 (42%)	58 (55.8%)
Family History of allergic disease (n, %)		
Yes	73 (65.2%)	26 (25%)
No	39 (34.8%)	78 (75%)

Mann-Whitney U-test was used for non-normally distributed data, p<0,05

Conclusion

This study demonstrated that no relation between caesarean section delivery and childhood atopic allergic disease was found in this study.

References

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