



ASSOCIATION BETWEEN CAESAREAN SECTION (CS) AND BIRTH OF ASTHMATICS

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ABSTRACT

Background and Objective- Asthma is one of the commonest respiratory diseases as well as a significant disease burden worldwide costing billions of dollars. Anti-asthmatic drugs are the only treatment method for the disease but they are expensive and have adverse effects. Thus, it is wise to look for an adjunct therapy to alleviate these problems. Type of delivery is contributing factor that causes allergic diseases, such as asthma. Therefore, the present study investigates the association between caesarean section (CS) and birth of asthmatic. **Methods-** It was a randomized controlled study carried out from December 2019- November 2021. Asthma patients aged between 18 to 40 years were recruited from the Department of Respiratory Medicine, King George's Medical University, U.P, Lucknow, India. They were randomly divided into two groups: 'the case group (asthma patients took birth from Cesarean) and 'the control group' (asthma patients took birth from normal/ vaginal delivery). **Results-** The results of this study suggests that 67% patients were asthmatic who took birth from C- section and they have high risk of allergy and asthma since childhood. They also showed psychological disorders in comparison to those who took birth from vaginal delivery. **Conclusion-** Normal or vaginal delivery is safer than C-section and have lesser risk to be asthmatic. The psychological disorders like anxiety, depression and stress was found higher in cases than the controls.

KEYWORDS : adjunct; asthma; caesarean; psychological; vaginal delivery

INTRODUCTION

Asthma is a common chronic inflammatory respiratory disorder characterized by hypersensitivity of the airways and reversible, episodic airway obstruction^[1]. Typical symptoms of asthma include wheezing, coughing, chest tightness, and dyspnoea (shortness of breath). In addition to physiologic dysfunction, many people with asthma also suffer from psychological distress in the form of depression, anxiety, and emotional disorders^[2-3]. The prevalence of asthma has increased dramatically over the past decade. Globally, asthma affects about 300 million people, and this figure continues to rise^[4-5]. Mostly the disease shows its symptoms since childhood and can be seen in the patients in young age. There are 50 Lakhs asthmatics in Uttar Pradesh and two- third of them shows the symptoms of asthma since childhood while one- third of them shows the symptoms of asthma since young age.

OBJECTIVE-

To find out the association between caesarean section (CS) and birth of asthmatics.

MATERIALS AND METHODS

Study Design And Setting-

This study was a randomized controlled trial, conducted from December 2018- November 2021 in the Department of Respiratory Medicine, King George's Medical University, U.P, Lucknow, India. Diagnosed cases of asthma were recruited from the Out Patient Department (OPD) of the department and screened by a consultant for the participation in the study on the basis of inclusion & exclusion criteria.

The Patients were included in the study having mild to moderate persistent bronchial asthma severity according to GINA- 2018, age of the patients ranging between 18-40 years. They were non-smokers or ex-smokers who have not smoked for at least 6 months and reversible airflow limitation $>12\%$ & ≥ 200 mL (Post Bronchodilator $FEV_1 >12\%$ & ≥ 200 mL) and having depressive disorders due to asthma. Patients were excluded with severe airflow limitation or more ($FEV_1 < 60\%$), Pregnant or lactating women, any associated chronic respiratory diseases.

Study Participants-

The required minimum sample size for the study was

calculated keeping in view 95% level of significance, 90% power and two-tailed test. Applying 10% loss to follow up, in this trial, 241 subjects who satisfied the inclusion criteria were allocated. They were divided into two groups' the case group (asthma patients took birth from Cesarean) and 'the control group' (asthma patients took birth from normal delivery).

Data Collection-

It was a questionnaire based study, patients were asked for their type of birth and their complications after their birth and childhood diseases. DASS- 21 Questionnaire was used for the findings of psychological disorders.

DAAS 21 questionnaire (Manual for the Depression Anxiety & Stress Scales) Sydney: Psychology Foundation) was used to measure. The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) are a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorders.

Analysis of Data -

Paired t-test was used to test the mean difference score of the subjects. Differences were considered significant if $p < 0.05$. The Statistical analysis was done by using GraphPadInStat version 3.1 software Inc, year 2016 (Version. 3.05 GraphPad software, Inc., California).

RESULTS-

Table 1 shows the parameters of both groups cases as well as controls.

Cases-

Out of the 121 asthma patients in the yoga group 79 (59.17%)

were males and 49 (40.83%) were females. The overall mean age of the patients in this group was 37.03 ± 11.46 years. The overall mean weight of the patients in this group was 53.12 ± 10.49 Kg and the height was 161.31 ± 7.9 cm. 111 (91.74%) were Hindus and 10 (8.26%) were Muslims. 117 (96.69%) patients were from urban area while 4(3.31%) were from rural area. The socioeconomic history reveals that 3 (2.48%) of the subjects belonged to Upper Socioeconomic Class (Group I), 25 (20.66%) subjects belonged to Upper Middle Class (Group II), 32 (26.45%) subjects to Lower Middle Class (Group III), 44 (36.36%) subjects belonged to Upper Lower Class (Group IV), and 17 (14.05%) subjects belonged to Lower Class (Group V). 39 (32.23%) subjects had positive family history of asthma, and 82 (67.77%) did not have any family history of asthma. On the basis of smoking history 43 (34.71%) were ex-smoker and 78 (64.46) were non-smokers. Severity of asthma, as measured by Symptoms, Pulmonary function test and medications, shows that 100 (82.64%) patients had mild persistent asthma and 21 (17.36%) had moderate persistent asthma. 81 (67%) patients took birth through c- section and 40 (33%) patients took birth through vaginal delivery.

Table 1.1: Socioeconomic and Demographic Profile

Parameters	Cases (n= 121)	Controls (n= 120)	P- value
Age (mean \pm SD)	37.03 \pm 11.46	38.69 \pm 10.54	0.25
Age range in years [n (%)]			
12 – 20	8 (6.61)	6 (5)	
20 – 28	17 (14.05)	12 (10)	
28 – 36	34 (28.1)	27 (22.5)	
36 – 44	28 (23.14)	32 (26.67)	
44 – 52	14 (11.57)	31 (25.83)	
52 – 60	20 (16.53)	12 (10)	
Sex [n (%)]			0.53
Male	67(55.37)	71(59.17)	
Female	54 (44.63)	49 (40.83)	
Weight (mean \pm SD)	53.12 \pm 10.49	54.35 \pm 8.44	0.32
Height (mean \pm SD)	161.31 \pm 7.9	161.89 \pm 9.97	0.08
Religion [n (%)]			0.15
Hindu	111 (91.74)	103 (85.83)	
Muslims	10 (8.26)	17 (14.17)	
Residence [n (%)]			0.08
Urban	117 (96.69)	111 (92.50)	
Rural	4 (3.31)	9 (7.50)	
Socioeconomic Status [n (%)]			0.18
I: Upper	3 (2.48)	-	
II: Upper Middle	25 (20.66)	12 (10)	
III: Lower Middle	32 (26.45)	40 (33.33)	
IV: Upper Lower	44 (36.36)	44 (36.67)	
V: Lower	17 (14.05)	24 (20)	
Smoking History [n (%)]			0.057
Ex-smoker	43 (34.71)	25 (20.83)	
Non-smoker	78 (64.46)	95 (79.17)	
Family History of disease [n (%)]			0.39
Yes	39 (32.23)	32 (26.67)	
No	82 (67.77)	88 (73.33)	
Severity of disease [n (%)]			0.55
Mild	100 (82.64)	96 (80)	
Moderate	21 (17.36)	24 (20)	
Type of Birth [n (%)]			0.48
C- section	81 (67)	74 (62)	
Normal delivery	40 (33)	46 (38)	

SD-Standard deviation
n= number of the subjects

Controls- Out of 120 subjects in the control group 67 (55.37%)

were males and 54 (44.63%) were females. The overall mean age of the patients in this group was 37.03 ± 11.46 years. The overall mean weight of the patients in this group was 54.35 ± 8.44 Kg and the height was 161.89 ± 9.97 cm. 111 (91.74%) were Hindus and 10 (8.26%) were Muslims. 117 (96.69%) patients were from urban area and 4 (3.31%) from rural area. The socioeconomic history reveals that none of the asthmatics were belonged to Upper Socioeconomic Class (Group I), 12 (10%) were belonged to Upper Middle Class (Group II), 40 (33.33%) subjects to Lower Middle Class (Group III), 44 (36.67%) subjects to Upper Lower Class (IV) and 24 (20%) subjects belonged to Lower Class (Group V). 32 (26.67%) patients had positive family history of asthma and 88 (73.33%) cases were without any family history of asthma. On the basis of smoking history 25 (20.83%) were ex-smoker, 95 (79.17%) were non- smokers. Severity of asthma as measured by Symptoms, Pulmonary function test and medications shows that 96 (80%) patients had mild persistent asthma and 24 (20%) had moderate persistent asthma. 74 (62%) patients took birth through c- section and 46 (38%) patients took birth through vaginal delivery.

Table 2: Cases and Controls

	Cases	Controls	p- value
	N= 121, mean \pm SD	N= 120, mean \pm SD	
Psychological disorders			
Depression	21.75 \pm 8.26	17.25 \pm 7.70	0.005
Anxiety	18.25 \pm 15.35	16.25 \pm 12.71	0.28
Stress	20 \pm 9.20	19.5 \pm 10.7	0.006

Table 2 showed the variables of psychological disorders. Case group i.e, subjects who took birth through c- section has the higher level of depression, anxiety and stress in comparison to controls i.e, subjects who took birth through vaginal delivery.

DISCUSSION-

The results of this study suggests that subjects who took birth through c- section have higher risk of allergy and asthma, they got the symptoms since their childhood and facing the psychological disorders higher in comparison to subjects who took birth through vaginal delivery. None of the study has shown this finding.

Asthma has long been associated with symptoms of mood and anxiety disorders^[6].

Available studies show that the prevalence of anxiety and depressive disorders is more elevated among asthma patients than in general population. However, the association of mental health problems with asthma severity is controversial. Some studies have shown significantly higher level of anxiety and depression in patients with severe asthma as compared to those with milder disease, while other studies did not detect such differences^[7-8].

CONCLUSION-

The study shows that the patients who took birth through vaginal delivery have low risk to be an asthmatic while patients who took birth through c- section are at high risk of allergy and asthma.

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Conflicts Of Interest- No

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