Original Article

Demographic, Maternal and Obstetrical Factors Associated with Infantile Colic

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ABSTRACT

Objective: To find out the demographic as well as maternal and obstetrical factors associated with infantile colic.
Study Design: A case control study.
Place and Duration of Study: This study was conducted at the Institute of Child Health, Multan, Pakistan and Pediatrics Department, Services Hospital, Lahore Pakistan from October 2018 to March 2019.
Materials and Methods: We enrolled 100 cases and 100 controls from outpatient facilities for this study. Cases were considered as babies of both genders who had IC as per Wessel's criteria and having age less than 3 months. Controls were babies attending clinic without colic and who were more than 3 weeks to 3 months of age. Demographic, maternal and obstetrical data was recorded and compared between cases and controls.
Results: Most of the cases with IC, 53 (53.0%) were females, aged 4 to 6 weeks 53 (53.0%) and were having mixed feeding 38 (38.0%). Mean age of the cases was recorded as 5.2 weeks in comparison to a mean of 6.2 weeks in control group ($p < 0.0001$). Mean daily sleep duration was recorded to be 9.52 hours vs 13.12 hours in control group ($p < 0.0001$). Crying at night ($p = 0.003$) was turned out to be a factor significantly associated with IC ($p > 0.05$).
Conclusion: IC is a frequent problem in younger infants. Night crying and comparatively less sleep time per day was noted babies with IC. Parents handling IC should be motivated and educated about this problem to handle their babies in a better way.
Key Words: Infantile colic, daily sleep, crying at night, younger infants.

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INTRODUCTION

Infantile colic (IC) is considered to be a frequent reason for parents visiting healthcare facilities. It is estimated that about 15 to 40% babies are affected with IC.[1] IC usually starts from 2nd or 3rd week following birth whereas self remit is spontaneous in about 3 to 4 months.[2] Definition of IC is not agreed upon but it could be labeled in terms of episodes of unexplained crying during first 3 months of life.[3] As per Wessel criteria, IC is fussy crying lasting more than 3 hours per day that spans for more than 3 days a week and for A minimum of 3 weeks.[4] IC is also described as behavioral syndrome which is depicted by paroxysmal, inconsolable, excessive crying devoid of any recognizable reason in an infant that looks healthy in the first 3 months of life.

Etiology of IC is multi-`factorial involving autonomic hyper-reactivity, deficiency of progesterone levels and events occurring within labour.[5,6] Gastrointestinal (GI) factors like GI immaturity as well as milk intolerance have also been linked with IC. In infants who present with distressed crying, less than 5% have underlying organic causes.[7]

Many treatment options are tried in babies suffering with IC but not much evidence is available in the literature about the management of IC. Treatment options like hypoallergenic formula have been shown to be beneficial.[8] Pediatricians are dealing with children suffering with IC on daily basis while parents are in a state of agony seeking solutions. This study was planned to be a multi-centric involving Institute of The Child Health Multan and Services Hospital, Lahore, Pakistan. Both these institutes are leading children healthcare facilities and our aim was to find out the demographic as well as maternal and obstetrical factors associated with IC. Findings of this study will further add to what little literature is available addressing IC in Pakistan.

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MATERIALS AND METHODS

This case control study was conducted at Department of Pediatrics, The Institute of Child Health, Multan, Pakistan and Pediatrics Department, Services Hospital, Lahore Pakistan from October 2018 to March 2019. Both study centers are tertiary care hospitals and considered to be the major referral centers in their respective cities. We enrolled 100 cases and 100 controls (50 cases and 50 controls from each center) from outpatient facilities for this study. Cases were considered children of both genders who had IC as per Wessel's criteria[4] and having age less than 3 months. Children having any other serious chronic illness or disease were excluded. Babies with other recognizable causes of colic pain including otitis media, meningitis or napkin dermatitis were also not enrolled. Controls were babies attending clinic without colic and who were aged over 3 weeks up to 3 months.

A self designed questionnaire was utilized to accumulate demographic, maternal, obstetrical and medical data from parents or guardians of all the enrolled children. Ethical clearance for this study was sought from respective institutes and informed consent was taken from parents or guardians of the enrolled babies.

SPSS verison 21.0 was used to data handling and analysis. Demographic, maternal and obstetrical factors were compared between study groups. T test was employed to compare quantitative data like age and duration of sleep while chi square test was applied to compare qualitative variables. P value less than or equal to 0.05 was considered as statically significant.

RESULTS

Most of the cases with IC, 53 (53.0%) were females, aged 4 to 6 weeks 53 (53.0%) and were having mixed feeding 38 (38.0%). Amongst cases with IC, maximum crying was noted during the whole day and night, in 32 (32.0%) and 53 (53.0%) respectively. Family history of GI disease was noted in 24 (24.0%) cases. Mode of delivery was cesarean section (CS) in most of the cases, 58 (58.0%). Gestational age for mothers was noted as 37 to 42 weeks in most, 74 (74.0%) cases. Most of the cases had birth weight between 2.5 to 4 kg, 83 (83.0%). Maternal age was noted between 20 to 35 years, in 69 (69.0%) cases. Diabetes Mellitus during pregnancy was noted in mothers of 11 (11.0%) cases.

Mean age of the cases was recorded as 5.2 weeks with a standard deviation of 0.54 weeks in comparison to a mean of 6.2 weeks with a standard deviation of 0.63 weeks in controls ($p < 0.0001$). Mean daily sleep duration was recorded to be 9.52 hours with standard deviation of 2.37 hours per day in cases as in comparison to a mean of 13.12 hours with standard deviation of 2.51 hours in comparison to controls ($p < 0.0001$).

Table No.1: Characteristics of Cases and Controls

Study variable		Cases (n=100)	Controls (n=100)	P Value
Gender	Male	47 (47.0%)	52 (52.0%)	0.479
	Female	53 (53.0%)	48 (48.0%)	
Age (weeks)	4-6	53 (53.0%)	46 (46.0%)	0.547
	7-9	23 (23.0%)	29 (29.0%)	
	>9	24 (24.0%)	25 (25.0%)	
Feeding Types	Breast Feed	24 (24.0%)	26 (26.0%)	0.053
	Bottle Feed	27 (27.0%)	14 (14.0%)	
	Mixed Feed	38 (38.0%)	47 (47.0%)	
	Lactose Free Feed	8 (8.0%)	13 (13.0%)	
	Anti-colic Feed	3 (3.0%)	0 (0%)	
Maximum Crying	Day	15 (15.0%)	35 (35.0%)	0.003
	Night	32 (32.0%)	20 (20.0%)	
	Whole Day	53 (53.0%)	45 (45.0%)	
Family History of GI Disease	Yes	24 (24.0%)	29 (29.0%)	0.423
	No	76 (76.0%)	71 (71.0%)	
Diabetes Mellitus during Pregnancy	Yes	11 (11.0%)	8 (8.0%)	0.469
	No	89 (89.0%)	92 (92.0%)	

Table No. 2: Distribution of Maternal and Obstetrical Factors With Regards to Cases and Controls

Study variable		Cases (n=100)	Controls (n=100)	P Value
Mode of Delivery	CS	58 (58.0%)	56 (56.0%)	0.775
	NVD	42 (42.0%)	44 (44.0%)	
Gestational Age (weeks)	<37	25 (25.0%)	14 (14.0%)	0.131
	37-42	74 (74.0%)	84 (84.0%)	
	>42	1 (1.0%)	2 (2.0%)	
Birth Weight (kg)	<2.5	19 (19.0%)	36 (18.0%)	0.114
	2.5-4	83 (83.0%)	77 (77.0%)	
	>4	0 (0%)	4 (4.0%)	
Maternal Age (years)	<20	20 (20.0%)	17 (17.0%)	0.734
	20-35	69 (69.0%)	74 (74.0%)	
	>35	11 (11.0%)	9 (9.0%)	

When cases were compared with controls, maximum crying at night (p = 0.003) was turned out to be a factor significantly associated with IC while statistically insignificant difference was noted for all other study variables in between cases and controls (p > 0.05).

DISCUSSION

IC is a familiar problem and could precipitate by numerous factors. Age has always been thought to be firmly linked with IC as most studies suggested that most of the infants report within 6 weeks following birth.[9,10] Our findings were in accordance to what has been found earlier[9,10] in terms of age as most of the cases, 53 (53.0%) were aged 4 to 6 months. Mean age of the cases was noted to be 5.2 weeks in the present study which is quite similar to what was found by another study[11] where mean age of the babies with IC was 5 weeks.

In the present work, majority of IC babies mothers, 69 (69.0%) had age between 20 to 35 years of age. This is pretty consistent to findings of Chalabi DA et al[10] and Chinawa JM et al[12] where they noted that most of the mothers of IC babies were between the similar age.

Our study was in accordance to previous results[13,15] where almost equal number of male and female babies got affected by IC. We noted that that most, 69 (69.0%) babies were born by CS while no significant difference was found in terms of mode of delivery between cases and controls. Our results are different to what was found in a study from Iraq[10] where they noted CS to be significantly associated with IC. The difference could possibly be because of difference in trends of adopting CS in different countries. Our results in terms of mode of delivery of babies having IC are in agreement with those of Hogdall CK et al[16] and Savino F et al.[15] Some researchers have also found smoking to be 2 folds higher in mothers of IC babies[17] but we did not plan to note smoking in IC babies mothers as smoking is not a common practice in our area.

We noted that majority of mothers of the IC cases, 74 (74.0%) had gestational age between 37 to 42 weeks. We did not notice any difference between gestational age of cases or controls. Many of the previous studies[18,19] did not enroll preterm newborns while evaluating factors for IC while some others noted that risk of IC is enhanced in preterm newborns.[20]

In the current work we did not notice any significant difference between cases and controls with regards to types of feeding. Colic has been documented as commonly in babies who are breastfed as those who are artificial fed.[10] Types of feeding has not been documented to influence incidence of IC[21,22] while some studies have reported that IC increase in babies who are breastfed.[23,24]

Night time crying was significantly more (p = 0.0003) in cases as compared to controls (32% vs. 20%). Night time crying has been indicated in babies with IC by many other previous studies and our results were in accordance with many other previous studies.[10,25] Clinicians should be keen to identify crying pattern while identifying IC in babies. Mean sleep duration per day was significantly less in cases as 9.52 hours as compared to a mean 13.12 hours in controls. This finding was very much anticipated and has been documented by others as well.[10] Family history of GI disease was not found to have any linkage with colic in the present study and this fact has been very well established in the previous works as well.[13,15]

CONCLUSION

IC is a frequent problem in younger infants. Night crying and comparatively less sleep time per day was noted babies with IC. Parents handling IC should be motivated and educated about this problem to handle their babies in a better way.

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Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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