Maternal and Other Risk Factors Including Bovine IgG in Developing Infantile Colic

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Abstract

Objective: Infantile colic is one of the most current problems in the first few months of life. It is suggested that organic or psychologic and behavioral factors can predispose to involve this disorder. Here, we have studied the role of some maternal risk factors including bovine IgG levels in breast milk for appearing the colic in young babies.

Material & Methods: This retrospective study was performed on 50 infants as case group and 30 infants aged 3 weeks to 3 months who had normal growth and development as control group for one year in Mashad. Data was analyzed with Pearson Chi-Square and Fisher’s exact tests.

Findings: Most colicky infants were male (62% vs 38% female). They were mainly symptomatic at neonatal period. In 64% of cases, it occurred in the first offspring. Infantile colic was more common in babies who delivered normally than by cesarean section and in mothers aged 20-30 years. According to our finding, there was no relationship between bovine IgG in breast milk and infantile colic. It revealed that anxious pregnant women had more colicky babies and paternal smoking seemed to develop colic in young infants.

Conclusion: In order to reduce the occurrence of colic in infants, primigravid mothers aged 20-30 years should have a stressfree environment especially during pregnancy and no smoking exposure in this period.

Key Words: Colic, Infant, Maternal risks, Bovine IgG, Cesarean section

Introduction

Infantile colic is a major complain in some families who have young infants. It occurs in about 20% of newborns and young babies [1]. It is a self limited condition that abolishes about 3 to 4 months after birth. Its occurrence is with uncomfortibility for babies and as a result for his or her parents. In this study, bovine IgG in breast...
milk of mothers whose babies suffered from infantile colic, was estimated. Also probable risk factors in pregnant mothers such as age, type of delivery, psychological stress and anxiety, order of birth and paternal smoking have been evaluated.

In one study which was performed on 59 mothers in Washington, 29 of them who had babies aged 2 weeks to 17 weeks and colicky infants, showed higher levels of bovine IgG in her milk than remainder 30 mothers with non-colicky infants [1].

In another study which was performed on 66 breast-fed infants, who suffered from colic, it was shown that exclusion of cow milk from their mothers' diet caused colic improvement in 35 infants [2]. Some separate studies have highlighted that anxiety and stress during pregnancy, smoking, first offspring and cesarean section delivery are among the risk factors for having colicky infants [3, 4, 5, 6, 7].

Material & Methods

This case-control study was performed during 2001, in pediatric wards of Ghaem and Dr.Sheikh hospitals in Mashad. Infants aged 3 weeks to 3 months who met Wassel’s criteria including crying more than 3 hours per day and 3 days a week for more than 3 weeks, were studied. There were two groups: case group including 50 patients and control group consisted of 30 patients. Bovine IgG levels in breast milk of patients were measured. Data was analyzed with Pearson Chi-Square and Fisher’s exact tests.

Findings

Thirty one infants (62%) were male and 19 infants (38%) female. They were mainly symptomatic at neonatal period. In 20% of the infants in case group, bovine IgG level in breast milk was detectable. (<10 microgrs/ml), and remainder (80% the infants of case group) had no bovine IgG in breast milk. In 20% of control group the bovine IgG level of breast milk was below 20 microgrs/ml and 80% had no bovine IgG in breast milk. Therefore, it was clear that there was no significant difference between case and control groups for bovinge IgG levels in breast milk.

In most (60%) cases, the onset of colic symptoms was in infants under one month old. Colicky infants in most (64%) cases were first born. According to our findings, 90% of cases were born at term, but in comparison with control group (P>0.05).

Most of patients (70%) became symptomatic at afternoon and night. In case group 54% of infants were born by vaginal route and 46% by cesarean section (Table 1). There was significant association between infantile colic and NVD delivery (P=041, chi²=6.39, df=2). The age of mothers was 20-30 years in 58% of the infants in case group (colicy infants) 35 infants in this group (60%) were exclusively breast milk fed. Tabel 2 presents relationship between infantile

<table>
<thead>
<tr>
<th>Groups Delivery</th>
<th>Target</th>
<th>control</th>
<th>P. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVD</td>
<td>27 (54%)</td>
<td>11 (36.7%)</td>
<td>0.041</td>
</tr>
<tr>
<td>C/S</td>
<td>23 (46%)</td>
<td>16 (53.3%)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>--</td>
<td>3 (10%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50 (62.5%)</td>
<td>30 (37.5%)</td>
<td></td>
</tr>
</tbody>
</table>
Table 2- Relationship between infantile colic and mother’s disorders during pregnancy

<table>
<thead>
<tr>
<th>Groups</th>
<th>Target</th>
<th>Control</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>18 (36%)</td>
<td>4 (13.3%)</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>9 (18%)</td>
<td>1 (3.3%)</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>6 (12%)</td>
<td>1 (3.3%)</td>
<td>0.000</td>
</tr>
<tr>
<td>Infection</td>
<td>5 (10%)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>No Disease</td>
<td>12 (24%)</td>
<td>24 (80%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>30 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

colic and mother’s diseases during pregnancy. As shown in this table, there was a significant association between infantile colic and disease of mothers (P=0.000, chi²=24.04, df=4).

It was shown that 62% of the mother of the infants in case group were housewives and 38% were working. In control group it was 76.6% and 23.4% respectively, with no significant relation statistically.

Table 3 shows significant statistically role of paternal smoking in colicky infants (P=0.038, chi²=4.69, df=1).

Discussion

This study was conducted to assay the role of maternal risk factors consisting of bovine IgG in breast milk and infantile colic occurrence. Factors such as parity, maternal disease during pregnancy, type of delivery, smoking, order of birth and mother’s age also were evaluated.

According to a study which was performed in 1991, it was shown that among 59 mothers who had babies aged 2 to 17 weeks, 29 mothers of colicky infants had a significant amount of bovine IgG compared with 30 mothers of noncolicky infants [2]. Similar results have been reported in other studies [8, 9, 10]. We found no relationship between bovine IgG levels in breast milk and infantile colic. Like to ours, a study which was performed on infants aged 2 weeks and more, no correlation between protein hypersensivity and colicky babies was detected [1].

In our study, it is demonstrated that male gender to female is predominant but with no statistical significance. Also some other studies revealed no sex difference among colicky babies [5, 11]. But a survey from Netherland showed male predominance [12].

Route of delivery in most of our colicky infants was vaginal. In one study obstetric factors had no significant role [13]. But in another report, history of cesarean section is a risk factor for colic in babies [7].

Most of our cases were first born, in common with surveys from Belgium and France [3, 5]. But in other studies order of birth has not been considered important [7, 14]. Many of colicy babies in our study were born at term but similar other study there is not significant relation between gestational age and colic pain in our subjects [5]. But some other studies showed a relation between low birth weight and

Table 3- The role of paternal smoking in colicky babies

<table>
<thead>
<tr>
<th>Smoking</th>
<th>Positive</th>
<th>Negative</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>13 (86.7%)</td>
<td>35 (56.5%)</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>2 (13.3%)</td>
<td>27 (43.5%)</td>
<td>0.038</td>
</tr>
<tr>
<td>Total</td>
<td>15 (100%)</td>
<td>62 (100%)</td>
<td></td>
</tr>
</tbody>
</table>
occurrence of more colic in such babies\textsuperscript{[3, 15]}.

We found mothers aged 20-30 years were at risk to have colicky infants. Results from a study in Brazil also showed that mothers aged 20-39 years had the highest rate of colicky babies\textsuperscript{[3]}. Our findings revealed anxiety and depression during pregnancy are associated with a higher rate of infantile colic as in some other studies from Finland and France \textsuperscript{[3, 4]}.

Most of our patients began colic symptoms during the first month of life similar to another report \textsuperscript{[16]}, and in a survey from France median age of colicky patients was 51.3 days \textsuperscript{[3]}.

In one study from USA, it is stressed that exposure to smoking during and after birth can be associated with infantile colic \textsuperscript{[6]}. Also, we found that paternal smoking acted as a predisposing factor to develop colic in infants. But in another study, parental smoking has no role to create colicy symptoms in infants \textsuperscript{[14]}.

**Conclusion**

According to our findings, providing a stress free life and no smoking area for pregnant women, especially primigravid ones aged 20-30 years who await a for normal delivery, is helpful to reduce the rate of colic in their offsprings.

**Acknowledgment**

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**References**