

Relationship of Hemoglobin Level and Type of Breastfeeding with Febrile Convulsions in Children in Baghdad/Iraq

Hamid Aneed Meshaal¹ and Wijdan I. A. Abd-alwahab²

^{1,2}University of Samarra/College of Education/Department of Biology

¹t.hamid636@gmail.com , ²wijdan80@uosamarra.edu.iq

Abstract:

The current study was conducted to study Hemoglobin and the nature of lactation their role in the occurrence of Febrile convulsions in children in the city of Baghdad by measuring the percentage of Hemoglobin level and Type of Breastfeeding. The number of samples in the current study was 90, which were divided into two groups: the control group included 30 samples and the injured group included 60 samples. The ages of the children ranged from 6 months to 60 months, and collecting samples from the Central Child Teaching Hospital in Baghdad (Al-Karkh) for the period between 2 August until 15 November 2022, The study concluded that there was a significant decrease in the concentration of Hemoglobin in the blood and low percentage for breastfeeding.

Keywords: Febrile convulsions, Breastfeeding, Hemoglobin.

INTRODUCTION

Febrile convulsion is a most common form of childhood convulsion that occurs in 2-5% of them which represented the most common childhood convulsion disorder, exist only in association with an elevated temperature. Evidence suggests, however, that they have little connection cognitive function, so that prognosis for normal neurologic function is excellent with children with febrile convulsion (Swaiman , 2006). In the United States and Western Europe, they occur 2–4% of all children; In Japan, however, 9–10% of all children experience febrile convulsion, and rates as high as 14% have been reported from the Mariana Islands in Guam (Shinnar , 2002). Febrile convulsions occur in young children at a time in their development when the convulsion threshold is low. This is a time when young children are susceptible to frequent childhood infections such as upper respiratory infection, , viral syndrome, and they respond with comparably higher temperatures (Landreau-Mascaro , 2002). Animal studies suggest a possible role of endogenous pyrogens, such as interleukin 1beta, that, by increasing neuronal excitability, may link fever and convulsion activity (Matsuo , 2006). Viral illnesses are the predominant cause of febrile convulsions. Recent literature documented the presence of human herpes simplex virus 6 (HHSV-6) as the etiologic agent in roseola in about 20% of a group of patients presenting with their first febrile convulsions. Shigella gastroenteritis also has been associated with febrile convulsions (Millichap , 2006). Febrile convulsions tend to occur in families. In a child with febrile convulsion, the risk of febrile convulsion is 10% for the sibling and almost 50% for the sibling if a parent has febrile convulsions as well. Although clear evidence exists for a genetic basis of febrile convulsions, the mode of inheritance is unclear (Audenaert , 2006). Risk factors for febrile convulsions are as follows: Family history of febrile convulsions, High temperature, Parental report of developmental delay, Neonatal discharge at an age greater than 28 days Daycare attendance and Maternal alcohol intake and smoking during pregnancy (Two-fold). Presence of two of these risk factors increases the probability of a first febrile convulsion to about 30% (Vestergaard , 2002). There are two types of febrile convulsions: Simple febrile convulsions are usually over in a few minutes, but in rare cases they can last up to 15 minutes. During this type of convulsion, a child's whole body may convulse, shake, and twitch; their eyes may roll; and they may moan or become unconscious. Children can sometimes vomit or urinate (pee) on themselves during the convulsions. Complex febrile convulsions can last more than 15 minutes or happen more than once in 24 hours. They may also involve movement or twitching of just one part of the body (Gupta ,

2016). During generalized febrile convulsions, the body will become stiff and the arms and legs will begin twitching. The child loses consciousness, although their eyes remain open. Breathing can be irregular. They may become incontinent (wetting or soiling themselves); they may also vomit or have increased secretions (foaming at the mouth). The convulsion normally lasts for less than five minutes. The child's temperature is usually greater than 38 °C (100.4 °F) (Symptoms of febrile convulsions, 2014). Patients with active convulsions should be treated with airway management, high-flow oxygen, supportive care, and anticonvulsants as necessary. Acute treatment such as rectal diazepam (0.5 mg/kg) and buccal 0.4-0.5 mg/kg or intranasal (0.2 mg/kg) are effective and can be given at home for a convulsion lasting longer than five minutes (Sadleir, 2007).

Materials and Method:

Experiment Designs:

The samples were divided into two groups: the control group with 30 samples and the infected group with 60 samples. The trial period is from 2 August until 15 November, 2022.

Sample Collection :

The questionnaire form for the study was designed and included all the required information. One ml was withdrawn to measure the percentage of hemoglobin as well as the work of a special form for the type of feeding that includes three fields for the type of breastfeeding or artificial feeding or mixed.

Blood hemoglobin measurement

For the purpose of conducting a complete blood count CBC through the complete blood count device Hematolyzer located in the emergency laboratory at the Central Child Teaching Hospital in Baghdad / Karkh where the concentration of hemoglobin Hb was calculated.

Statistical Analysis

The results obtained from the current study were analysed by using SAS 2001. The ANOVA test was used. The significant differences between the arithmetic averages were tested by using the Duncan multiple range test to compare between the groups, and the significance level of 0.05.

The Results and Discussion:

The relationship of hemoglobin to Febrile convulsions

A significant decrease ($P \leq 0.05$) in the concentration of hemoglobin Hb (11.61 ± 1.05 g/dL) Iron deficiency is the most common nutrient deficiency in children. Recent studies began to link anemia to heat cramps in terms of the effect of iron on the level of the nervous system in terms of neurocellular metabolism because iron has an effect on the level of neurotransmitters as well as enters the synthesis of hemoglobin blood and thus delivers oxygen to the brain as well as iron is important for the performance of nervous system functions such as neuron metabolism and the formation of The medullary sheath because the sheath is added to it new layers under the layers formed first, as one cell in the central nervous system sends appendages to more than forty axes, which forms a connecting tissue between neurons, as it contains many vessels located between the layers and the production of energy in the brain (Lozoff, B, et al. 2006).

The reason may also be due to the presence of some iron-dependent enzymes, such as toptophan hydroxylase, which enters the synthesis of serotonin, tyrosine hydroxylase, which enters the synthesis of dopamine and norepinephrine, so iron deficiency affects the metabolism of monoamine, or the reason may be attributed to the enzyme cytochrome oxidase, an indicator of the effectiveness of the metabolism of the nervous system, so iron deficiency affects the effectiveness of the enzyme cytochrome oxidase (Johnston, 2012).

The relationship of feeding type to Febrile convulsions

The percentages of the type of feeding of children for the control group are breastfeeding 33.3%, bottle feeding 56% and mixed feeding 10.7%. In the group with heat cramps, breastfeeding was 25.7%, artificial feeding 61%, and mixed feeding 13.3%.

The study clarified the role of breastfeeding in the first months of a child's life. And risk factors for the occurrence of heat cramps in children between six months and five years and show percentages clear role for breastfeeding and because of its importance in the growth of child protection from various

diseases, and it was noted that there is a small difference between the percentage of breastfeeding and artificial and that may be due to the preference of many mothers for artificial feeding over breastfeeding at the present time. Breastfeeding is considered because of its positive effect on nutrition, gastrointestinal function and defense mechanisms, in addition to the positive long-term effects on both mother and child.

In all developing and developed countries, breast milk compared to other nutrients reduces the risk of acute disease. Breastfeeding is the dependence of the baby on breast milk only without an assisted feeding with another milk and for a period of not less than four months (Baker and Greer, 2010). It was observed from the current study that the longer the breastfeeding, the less likely the child is to suffer from heat cramps. The role of breast milk is manifested in two things: the immune role, as breastfeeding for a period of not less than 13 weeks reduces the rate of respiratory diseases, which is the first trigger for heat cramps as well as reduces intestinal injury. As breast milk contains immune defense mechanisms such as antibodies against bacteria, viruses and T Cell, in addition to proteins that enhance defense mechanisms against infections, including secretory immunoglobulin A (IgA Immunoglobulin A), as the infant remains unable to form IgA until the fourth month of his life and breast milk contains 1000 - 500 mg within 24 hours, which is equivalent to four times what serum contains, which is of the secretory type by 90%, which is important in local immunity in the membranes Mucosa, which may reduce the occurrence of heat cramps or reduce their frequency (Rrynold, 2008). Phagocytes also play an essential role in the ingestion of pathogens and are highly concentrated at the beginning of each feeding. In addition to lactobacillus, which limit the growth of pathogenic bacteria, anaeroboles and fungi. As well as the role of lysosomes that affect the membranes of bacteria positive to the dye Cram, causing its dissolution, knowing that the infant cannot form it until the end of the second year of life. The presence of lactoferrin inhibits the effectiveness of pathogenic bacteria by binding to the iron required by these bacteria. The digestion of lactoferrin also results in lactoferrycin, which inhibits intestinal bacteria such as Escherichia coli. Monosaccharides that inhibit the growth of certain bacilli such as Streptococcus pneumonia and Escherichia coli (Koenig *et al.*, 2005). It plays an important role in protecting the body from various diseases and may be due to the fact that the composition of breast milk is the best for the growth of infant organs as poly unsaturated fatty acid (PUFA) is necessary for the development of the nerve network and brain (Rrynold, 2008). Triglycerides are 90% of breast milk fat and are richer in essential fatty acids such as linoleic acid and linolenic acid, which the body can manufacture and have a key role in brain development (Rrynold, 2008).

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