

## Management in Cows' milk protein allergy-CMPA

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**ABSTRACT.** Certain digestive symptoms in the first year of life, during artificial nutrition with cow milk may have significance immunological or non immunological reaction to cow's milk proteins: the authors describe two clinical entities with digestive symptoms: lactose intolerance and milk cow protein allergy, and it is described also the simplest methods of diagnosis and dietary measures to be taken in each case.

**KEYWORDS:** cow milk protein, allergy, lactose intolerance, children, diet

### INTRODUCTION

Milk is essential and unique food of infants until the age of 4-6 months when it is recommended the diversification. Breastmilk remains the food of choice for infant feeding, giving it, besides many other advantages and that the decrease in the risk of developing a cows' milk proteins allergy (CMPA).

In particular cases, the mother's milk diet is not possible, powdered infant formula intended to supplement or replace the mother diet.

**Cows' milk protein allergy-** CMPA is a condition present in infants and young children caused by an immunological reaction of the body against cow's milk proteins. This type of allergy is considered the most common type of allergy child less than 2 years (3% according to some authors) and one of the most common types of food allergy after egg allergy, peanuts and fish.

Knowing the symptoms and diagnostic hierarchy approaches enable rapid initiation of dietary measures. The diagnosis must be quick, simple and inexpensive.

Cow's milk can not be tolerated from two main reasons: either a CMPA either a case to an intolerance to lactose.

Both conditions have common symptoms, clinical signs allow specific dietary measures which are completely different (excluding milk proteins in cow milk allergy and lactose in the case of intolerance).

Pathophysiological mechanism in CMPA type is immune while in lactose intolerance is a non immunological hypersensitivity due to an intestinal lactase deficiency (congenital, secondary to an infectious episode or a decrease in lactase activity in the forms with late onset).

**Lactose intolerance** is not an allergy but an intolerance. Lactose is a disaccharide composed of glucose and galactose. Intestinal lactase deficiency, which normally break down the disaccharide in the 2 component is manifested clinically by diarrhea, flatulence, abdominal cramps and nausea. Infants exhibit these signs after ingestion of whole milk, but tolerate milk delactosed and fermented products (yogurt, cheese, butter).

CMPA is a complex phenomenon, it is manifested by immunological reactions to cow milk proteins known to have a high potential allergy:  $\beta$ -lactoglobulin-A, casein,  $\alpha$ -lactalbumin-A.

**Immunopathological mechanisms triggered CMPA** are 2 types: IgE-mediated or non-IgE-mediated -cell type, in the first case, clinical signs manifests acutely, while in the second, the reaction is delayed and symptoms appears after a longer period of time. In addition to these two main mechanisms, it has also identified another type of reaction that was considered intolerant or non allergic hypersensitivity- the symptoms are the same, but without immunological evidence.

If **IgE-mediated CMPA** diagnosis is easily established because symptoms occurs two hours after ingestion of milk and can be of type of urticaria,

abdominal pain, rhinoconjunctivitis, cough, vomiting, edema or anaphylactoid signs. (1)Prick test and specific IgE are positive and oral challenge test is not recommended because of the danger of fatal reactions. As treatment is recommended exclusion of dietary protein and establishment cow milk preparations based on protein hydrolysates, also at the age of diversification will recommend an early diversification, and will consider the correction of calcium. Move towards healing is achieved in most cases. Increased serum IgE titres announces a poor prognosis.( De Boissieu,2006)

In **non-mediated IgE CMPA** symptoms are chronic and nonspecific clinical manifestations occurs-vomiting , gastroesophageal reflux, refusing food, flatulence, colic or abdominal pain, chronic diarrhea, constipation, failure to thrive, insomnia and irritability. In rare cases, symptoms appear early as severe eczema resistant to local corticosteroid treatment or recurrent otitis. The diagnosis can be easily with ease allowance which is to contact a patch milk test for 48 hours to skin and the read of the reaction in 72 hours . One such model is Diallertest patch ; possible results are false positives or negatives.( Isolauri,1996)

In this form of allergy, skin prick test and specific IgE are not conclusive . Evolution toward healing is much faster than IgE -mediated forms . Treatment consists of exclusion regime for at least a month, digestive signs relapsing after reintroduction of food can be a diagnosis criteria . (De Boissieu,2006)

Exclusion diet includes whole range of milk, milk products, cheese and other products that may contain milk. Goat and sheep milk are not recommended due to allergy cross with SLD may occur in 80 % of cases and other forms of milk (rice, soy) do not provide optimal nutritional intake in infants. Only tolerated and recommended in the diet of infants are hydrolyzed casein formulas (Nutramigen , Pregestimil, Nutriben) or hydrolysed lactoserum (Alfar, Peptijunior).

Persistence of symptoms after the introduction of protein hydrolysates can be an argument for allergy hydrolysates that may affect 10% of infants diagnosed with CMPA . In this case, the following symptoms occur : vomiting, growth retardation, abdominal cramps, irritability, eczema, crying, agitation, sleep disorders, chronic bronchitis . Diagnosis is established by skin tests at different hydrolysates and treatment consists of a diet with the introduction of products based on synthetic amino acids (Neocate type).( De Boissieu, 2004)

Awareness during maternal nutrition is also possible through the passage of antigens in breast milk, but this phenomenon is quite rare. In practice, regardless of the clinical form , is recommended to test the tolerance by oral challenge test, performed after 1 year of age, preferably in hospital. In case of failure , a new attempt will be made after six months , then annually until the age of 3 years, sell the possibility to resume with increased digestive tolerance.

Before oral challenge test is recommended a complete allergy assesment. Clinical assessment with cow milk protein exclusion and challenge within 4 weeks is the gold standard for diagnosis. (Koletzko et al,2012)

Important to note is that the ACMP can sometimes be the first manifestation of atopic diseases, so these patients will be investigated systematically for food or respiratory allergies.

#### **Conclusions**

CMPA is common and often misdiagnosed. Clinical assessment with cow milk protein exclusion and challenge within 4 weeks is the gold standard for diagnosis.

Supervised cow milk protein challenges are required to not prolong unnecessary diet restrictions..

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