

## Lactose Intolerance

Ammara Zahid\*, Ayesha Shaukat\*, .Khawaja Tahir Mahmood\*\*

\* *Department of Pharmacy, Lahore College For Women University,*  
\*\* *Drug Testing Lab, Lahore, Pakistan*

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### ABSTRACT:

Lactose intolerance is the inability to digest lactose (a type of sugar found in milk and other dairy products). Lactose intolerance happens when the small intestine does not make enough of the enzyme, lactase. Lactose intolerance is sometimes seen in premature babies. Children who were born at full term do not show signs of lactose intolerance.

**Aim;** To study the causative factors, symptoms, management of lactose intolerance, to treat the disease and to control possible complications of the disease. **Method;** The study was conducted in Children hospital from June, 7 to June, 30 2010. The study population include 25 patients that were suffering from lactose intolerance. The patients up to 5 years of age were included in the study. The patients above 5 years of age were excluded from the study. The patients with all other diseases were also excluded from the study. **Results;** Out of 25 patients 4 patients of 1-2year, 7 of 2-3years, 3 of 3-4years and 2 of 4-5 years. 36% were born at hospital and 64% were born at home. 52% were mother fed and 48% were bottle-fed. **Conclusion;** It is although rarely life-threatening. Treatment is relatively simple and aimed at reducing or eliminating the inciting substance, lactose, by eliminating it from the diet or by "predigesting" it with supplemental lactase-enzyme replacement. Calcium must be provided by alternate non-dairy dietary sources or as a dietary supplement to individuals who avoid milk intake.

**Key words:** Lactose intolerance, milk, lactase.

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### INTRODUCTION

Lactose intolerance is the inability to digest lactose. Lactose intolerance happens when the small intestine does not make enough of the enzyme, lactase. Baby's body makes the enzyme lactase so they can digest milk including breast milk. Although rarely life threatening, the symptoms of lactose intolerance can lead to significant discomfort, disrupted quality of life i.e. abdominal bloating, abdominal cramps ,floating stools, foul smelling stools, flatulence, malnutrition and weight loss. Lactose maldigestion and intolerance affect a large part of the world population. The underlying factors of lactose intolerance are not fully understood [1]. Lactose malabsorption and milk products intolerance symptoms are the most common alimentary tract disorders. Lactose intolerance is a result of lactase deficiency or lack of lactase and lactose malabsorption [2]. Due to the increased immune activation in the intestinal tract of people with celiac disease, the digestive and absorptive processes of those

affected may be compromised [3]. . Lactose, a disaccharide that comprises the monosaccharide, glucose and galactose, is the primary carbohydrate found exclusively in mammalian milk. Absorption of lactose requires lactase activity in the small intestinal brush border to split the bond linking the 2 monosaccharide. The diagnosis of lactose intolerance is based on the breath hydrogen test and analysis of lactase activity in the small intestine mucosa. Dietary treatment eliminates clinical symptoms [4]. Chronic diarrhea is defined as the passage of more than 200 g of stool per day for more than three weeks. This condition may result from decreased absorption of gastrointestinal contents or increased fluid secretion into the bowel. Although chronic diarrhea can have many etiologies, irritable bowel syndrome, lactose intolerance, dietary factors, and inflammatory bowel disease and colon cancer are the causes most frequently encountered in primary care practice [5]. Lactose is found only in mammalian milk and is hydrolyzed by lactase in the small intestine [6]. Temporary lactase deficiency

can result from viral and bacterial infections, especially in children, when the cells lining the intestine are injured. Lactose ingestion in certain susceptible individuals can cause abdominal symptoms that are variable and can be treated with <sup>dietary</sup> restriction or enzyme replacement, depending on the amount of lactose consumed and the degree of lactase deficiency. The lactose content of milk often influences, correctly or not, the ultimate decision about the use or continuation of milk in the diet. Milk and dairy-product avoidance has a negative effect on calcium and vitamin D intake in infants, children, and adolescents. Other nutrients such as protein make dairy products an important source of nutrition for growing children [7]. Various exams and tests used to diagnose lactose intolerance include Enteroscopy, Lactose-Hydrogen breath test, Lactose tolerance test, Test for stool <sup>reducing</sup> substances. Treatment involves removing the milk products from the diet, usually improves the symptoms. However not having milk in the diet can lead to shortage of calcium, vitamin D, riboflavin, and protein. Add other sources of calcium to the diet if milk products are removed. Most people with low lactose levels can tolerate 2-4 ounces of milk at one time (up to one-half cup). Larger (8 oz.) servings may cause problems for people with some amount of lactose intolerance [8]. Beyond infancy, substitutes for cow milk based on rice, soy, or other proteins are readily available and are generally free of lactose, although the nutrient content of most of these milks is not equivalent to cow milk. Other mammalian milks, including goat milk, are not free of lactose. Tolerance to milk products may be partial, so that dietary maneuvers alone may help avoid <sup>symptoms</sup> in some individuals. Small amounts of lactose in portions of 4 to 8 oz spaced through out the day and consumed with other foods may be tolerated with no

symptoms. Some children are able to drink 1 to 2 glasses of milk each day without difficulty but cannot tolerate more without developing symptoms. Many lactose-intolerant individuals who are intolerant of milk can tolerate milk chocolate and/or yogurt (plain better than flavored), because the bacteria in the yogurt partially digest the lactose <sup>into</sup> glucose and galactose before consumption. [9]

## MATERIAL AND METHODS

The study was carried out in Children Hospital, Lahore from 7 June to 30 June 2010. The purpose of the study was to gain knowledge about the causative factors, symptoms and management of lactose intolerance, to treat the disease and to control possible complications of the disease. Study population included all the patients of lactose intolerance with age up to 5 years. We visited the wards of hospital and found 25 patients. The patients with age greater than 5 years were excluded from the study.

In all patients we recorded sociodemographic characteristics such as age, sex, weight, birth history, nutritional history, vaccination history, feeding history and presenting complaints.

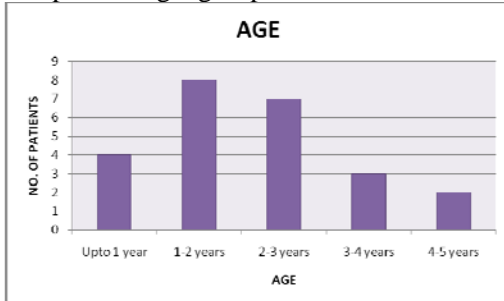
All the cases of lactose intolerance were recorded and results are given in terms of graphs and conclusions.

## RESULTS

Twenty five patients of lactose intolerance were studied.

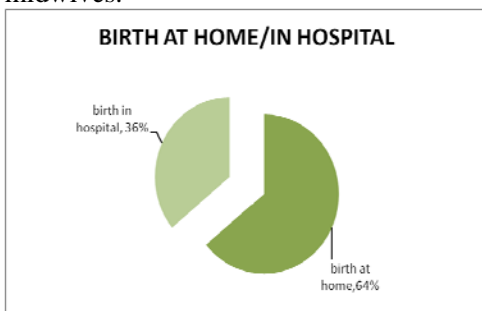
## GRAPHS

The graph showing the number of patients in specific age groups



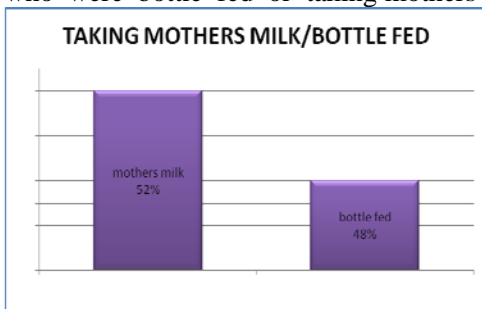
**Figure 1:** shows that 4 patients were of 1 year, 8 patients of age between 1-2 years, 7 patients between 2-3 years, 3 patients of age between 3-4 years and 2 patients of 4-5 years.

The graph showing the number of patients who were born at hospital or at homes by midwives.



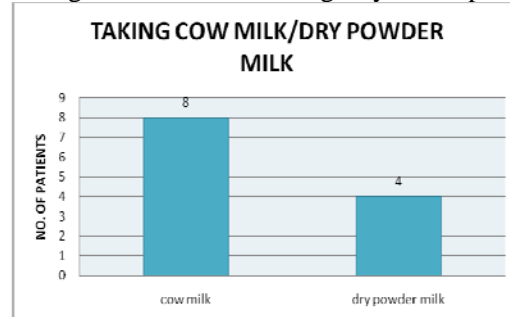
**Figure 2:** shows that 36% of patients were born at hospitals and 64% were born at homes by midwives.

The graph showing the number of patients who were bottle fed or taking mothers milk.



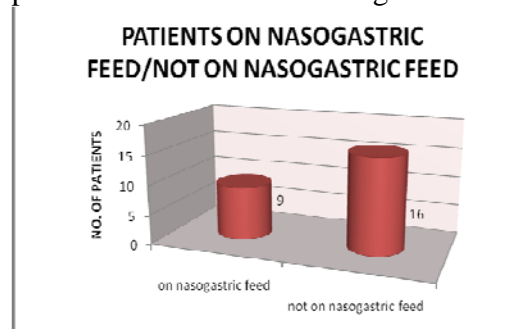
**Figure 3:** shows that 52% of patients were mother-fed and 48% were bottle-fed.

The graph showing the number of patients taking cow milk or taking dry milk powder.



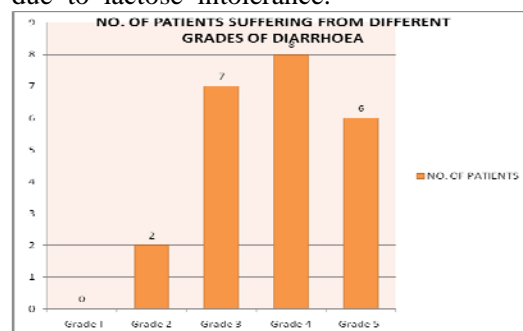
**Figure 4:** shows that 8 patients were taking cow milk and 4 patients were taking dry milk powder.

The graph showing the number of patients who were on nasogastric feed. 5



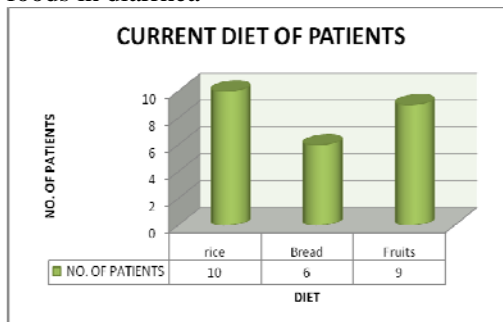
**Figure 5:** shows that 9 patients were on nasogastric feed and others are on oral intake.

The graph showing the grades of stool frequency in patients suffering from diarrhea due to lactose intolerance.



**Figure 6:** shows that no patient with Grade1, 2 patients with Grade2, 7 patients with Grade3, 8 patients with Grade4 and 6 patients were of Grade5 stool frequency.

The graph showing the patients taking different foods in diarrhea



**Figure 7:** shows that 10 patients were taking rice, 6 patients were taking bread and 9 patients were taking fruits during diarrhea.

## DISCUSSION

Lactose intolerance has been recognized for many years as a common problem in many children and most adults throughout the world. From The study conducted in the hospital , 25 patients were found who were suffering from lactose intolerance. Among them 4 patients were found up to the age of 1 year, 8 patients between the age of 1-2 years, 7 patients between the age of 2-3 years, 3 patients between the age of 3-4 years and 2 patients between the age of 4-5 years. The patients above the age of 5 years were not included in the study. The data was obtained from the patients regarding to their birth history, nutritional history, etc. The obtained for the birth history showed that 36% of the babies were born in the hospital and 64% of the patients were born at homes by midwives. The nutritional history of the patients was taken and this involved whether the patients were on mother fed or bottle fed. Among those who were bottle fed the data was collected to know how man patients were on cow milk and how many were taking dry milk powder and also that how many patients were on nasogastric feed. The nutritional history showed that 52% of the babies were on the mother fed and 48%

were on bottle fed. Out of those which were bottle fed 8 patients were taking cow milk and 4 were taking dry milk powder different brands of which are available in the market.

The study showed that 9 patients were on nasogastric feed which is obviously the severe condition in which patient is not capable of taking the food orally either due to weakness. He cannot eat sufficient amount of food or unconsciousness .The hereditary character was also noted if the other family members of the patient had ever suffered from lactose intolerance because it could be due to the absence of the enzyme lactase in the gene of the individual. But none of the patient was found to have any family problem of lactose intolerance. The stool frequency has been divided into different grades according to the severity of the condition. The data was collected and none of the patient was found to be suffering from GRADE 1 (normal formed stools.) 2 patients have the stool frequency of GRADE 2 (soft stools). 7 patients have the stool frequency of GRADE 3 (liquid stools taking shape of the container).8 patients were suffering from GRADE 4 (watery stools with flakes ,appears opaque in glass container) 6 patients have GRADE 5 severity (watery stools with few flakes, appears translucent in container).

The patients were also taking other diet in addition to milk which include rice, bread and fruits.10 patients were taking rice as a major food in addition to milk, 6 were on bread and 9 were taking mostly fruits.

## CONCLUSION

Lactose intolerance has been recognized for many years as a common problem in many children and most adults throughout the

world. Although rarely life-threatening, the symptoms of lactose intolerance can lead to significant discomfort, disrupted quality of life, and loss of school attendance, leisure and sports activities, and work time, all at a cost to individuals, families, and society. Treatment is relatively simple and aimed at reducing or eliminating the inciting substance, lactose, by eliminating it from the diet or by "predigesting" it with supplemental lactase-enzyme replacement. Calcium must be provided by alternate nondairy dietary sources or as a dietary supplement to individuals who avoid milk intake. Lactose-intolerant children (and their parents) should realize that ingestion of dairy products resulting in symptoms generally leads to transient symptoms without causing harm to the gastrointestinal tract (as compared with celiac disease or allergic reactions, including milk-protein intolerance, that can lead to ongoing inflammation and mucosal damage). Tolerance to milk products may be partial, so that dietary maneuvers alone may help avoid symptoms in some individuals

### **Acknowledgement:**

The authors humbly pay there profound gratitude to Prof. Dr. Bushra Mateen , Vice Chancellor, Lahore College for Women University, Lahore. The completion of project was not possible without the

courtesy of managements of Children Hospital, Lahore.

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