

TABLE I SHOWING THE PARAMETERS MEASURED IN THE STORED MILK

Parameter	Day 1	Day 2	Day 3	Day 4
pH	6.99 ± .12	6.15 ± .12	6.14 ± .00	6.13 ± .17
Total protein(g/dL)	1.60 ± .32	1.7 ± .00	1.64 ± .61	1.41 ± .44
Albumin(g/dL)	.5512 ± .16	0.87 ± .00	0.27 ± .21	.2884 ± .17
Lactose(mg/dL)	6077.36 ± 816.82	6000 ± .88	5845 ± .455	5462.24 ± 771.5
Triglyceride(mg/dL)	2325.52 ± 566.72	2290 ± 670	1980 ± 780.78	1896.40 ± 840.30

said that, race, age, parity, or diets do not greatly affect milk composition [4]. However in an Indian study it is found that the lactose content of breast milk of term Indian mothers is lower, similar to our study [5]. Since it would be unethical to perform a controlled study to find out side effects of “expired human milk” on newborns, we have to rely on such biochemical changes and laboratory parameters to determine the duration of safe storage of human milk.

In conclusion, we can store mother’s milk at refrigerator temperature of 4°C for 96 hours without changing its overall integrity in the form of pH, serum albumin, total protein, lipid and lactose content and can use it for feeding neonates and infants.

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Profile of EBV- Associated Infectious Mononucleosis

During a 5 year period, 33 children (22 males) were diagnosed to have infectious mononucleosis (M:F::2:1; age 9 mo-15 y). The common clinical features observed were fever (100%), lymphadenopathy (84%) hepatosplenomegaly (81%), tonsillar enlargement (45%), neck swelling (30%), upper respiratory symptoms (21%), epitrochlear node enlargement (20%), vomiting and diarrhea (1%). Ten children had complications; upper airway obstruction and hemophagocytic lymphohistocytosis occurred in four each and septic shock in two. EBV associated infectious mononucleosis in hospitalized children was found to affect mainly preschool children and had a favorable prognosis.

Key Words: *Children, EBV, Infectious mononucleosis.*

We conducted a retrospective analysis of case records of children hospitalized with a diagnosis of infectious mononucleosis between January 2003 to December 2008 in Kanchi Kamakoti CHILDS Trust hospital, Chennai. A

case of IM was defined by the presence of (i) fever, tonsillopharyngitis, cervical lymphadenopathy, hepatomegaly or splenomegaly, and (ii) serologic evidence of EBV infection *i.e.*,: IgM antibodies to EBV viral capsid antigen (VCA) (ELISA, D-Meditec Kit , OFB agency) and a titer >12µ/mL was considered as positive.

During the six year study period, 33 children were diagnosed to have IM out of a total 46,873 (0.07%) hospitalized children. Most of the cases were between 1 and 5 years old (22) (age range 9 months-15 years). The common clinical features and laboratory features observed are shown in **Table I**. Children who had fever > 14 days had a high risk of development of complications in our series (Fisher’s exact, *P*<0.05). The EBV VCA IgM titers ranged from 12 to 158 µ/mL. Children with high titers of VCA IgM (>100) had complications like septic shock.

TABLE I CLINICAL AND LABORATORY FEATURES OF 33 CHILDREN WITH INFECTIOUS MONONUCLEOSIS

Characteristics	Complications present (n = 10)	No complications (n = 23)
Age (y) Mean±SD	6.40 ± 4.08	4.83 ± 2.96
Fever Duration (d), Mean±SD	14.6 ± 9.9	12.6 ± 8.8
Cough/ rhinorrhea	2 (20%)	5
GI symptoms	2 (20%)	1 (4%)
Tonsillar enlargement and exudates	5 (50%)	10 (26%)
Generalized lymphadenopathy	7 (70%)	21 (91%)
Epitrochlear lymphadenopathy	1 (10%)	5 (21%)
Hepatosplenomegaly	6 (60%)	21 (91%)
Total count (/mm ³)	9860 ± 5429	10536 ± 6428
Atypical lymphocytes (%)	55.6 ± 15.2	55.96 ± 18
EBV IgM VCA	37.9 ± 11	47.27 ± 51

* $P < 0.05$ for difference in fever duration between children with/without complications (Mann-Whitney U test); VCA: viral capsid antigen.

Complications were noted in ten (30%) patients; upper airway obstruction and hemophagocytic lymphohistiocytosis (HLH) in four (12%) each and septic shock in two (6%). Though 15 (45%) of these 33 cases had received amoxicillin before diagnosis, none developed any rash. Children with upper airway obstruction were treated with corticosteroid therapy (prednisolone 1mg/kg/day for 1 week). Children with HLH were treated as per HLH 2004 protocol [1].

Our study reveals that EBV associated IM is more common in preschool male children similar to the earlier observation by Tsai, *et al.* [2]. The youngest age of presentation in our series was 9 months as against one year described previously [3,4]. The involvement of epitrochlear lymph nodes was noted in 6 (20%) patients and this clinical feature has not been described in earlier studies. Significant atypical lymphocytosis (atypical lymphocyte >10%) seen in our series is similar to

previously reports [2, 5]. Airway obstruction has been reported in 3.5% of all patients with infectious mononucleosis whereas it was present in only four (6%) of our patients [6]. Strikingly, a higher value of anti EBV IgM titre (>100 µ/mL) was observed in our series in children with complications. Female gender has been earlier reported as one of the risk factors for development of complications, which was not seen in this study. There was no mortality in our series.

We conclude that EBV associated IM is more common in preschool children. Amoxicillin induced rash may not always occur in children with EBV infection. These children need to be monitored for severe complications like upper airway obstruction, HLH and septic shock.

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