

How will we assess the safety of expressed human milk used for nutritional support on hospital neonatal wards?

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Abstract:

Unpasteurised expressed human milk is used by neonatologists in clinical care as both a strategy for tissue therapy and as a source of nutrition for preterm infants; however, it is a possible source of nosocomial infection. Approaches preferred by neonatologists are different compared to public health staff. The objective is to start broad scientific discussion about the safety of giving unpasteurised expressed human milk to preterm infants.

Keywords: expressed human milk – health services – nosocomial infection – public health practice

1. Introduction:

Significant progress in the fields of perinatal and neonatal medicine in the last few decades has increased the rates of survival of preterm infants. Development of health-care services and medical technologies has lowered neonatal morbidity and mortality. Advances in nutritional support are associated with the achievements of neonatal medicine. Nutritional support by unpasteurised expressed human milk is discussed to lower the risk of infection complications of preterm neonates. Unlike neonatologists, public health staff consider the safety of nutrition exclusively (Wight, 2001; Quigley & McGuire, 2014).

The use of unpasteurised expressed human milk could have legal consequences: in some countries, health care providers can be supervised by national public health authorities in terms of taking satisfactory preventive measures to avoid any possible outbreak of infections associated with hospitalization in health care institutions (Rigourd, Meyer, Kieffer, Aubry & Magny, 2011; Czech Republic, 2004). The importance of the antiseptic techniques is becoming widely recognised when using broad-spectrum antibiotics in therapy.

2. Unpasteurised expressed human milk – a possible source of infection:

Exogenous nosocomial infections related directly to unpasteurised expressed human milk are reported only rarely but they are often extremely serious because they attack a very vulnerable cohort of the population. In Central Europe, for example, there is a case report of *Salmonella typhimurium* infection at the neonatal ward of the district hospital in Trencin, Czechoslovakia in 1987, where Human milk was recognized as an unusual factor connected with the infection. One woman suffered from *Salmonella typhimurium* infection and her expressed milk was used to feed 11 infants on this ward (Drhová, Dobiášová & Štefkovičová, 1990). In 2009, a *Klebsiella pneumoniae* infection that occurred on a neonatal ward in Stavanger Hospital, Norway affected at least 58 infants. An investigation revealed the disease outbreak had originated from unpasteurised expressed human milk that had been tested for only a limited spectrum of bacteria (Rettedal et al., 2012). According to a preventive approach, 10^4 Gram-negative bacteria per mL in expressed human milk has been used as the threshold for feeding intolerance and 10^6 Gram-negative bacteria per mL as the threshold for risk of sepsis (Cossey, Jeurissen, Thelissen, Vanhole & Schuermans, 2011). In some countries, mothers have developed self-supporting cooperative activities for milk exchanges, termed milk sharing, which are based on mutual trust among the women (Eats on Feets, 2015). The practice has exploded online, very often using social networks. Milk sharing is practiced extensively, for example in the USA, and can be found in diverse forms in many other countries, including countries in Europe. The principles of milk sharing are adopted often on newborn wards because this method of nutrition for VLBW infants is supported by evidence-based medicine (Montjoux-Régis et al., 2011). By contrast, national law in some countries prohibits the administration of unpasteurised expressed human milk to foreign children.

3. Conclusions:

Different risk perceptions and related approaches to supervision provided by different national public health authorities is the reason why it is not easy to adopt methods of work from abroad to the fullest extent. Currently, it is not clear whether clinical nutrition with expressed human milk should be considered nutrition provided by food as a strategy for tissue therapy. The basic requirement for the use of any food is safety, which means the absence of any agent injurious to human health in view of immediate, short-term or long-term effect. If human milk is seen as tissue therapy, then every method of human therapy should be assessed in light of risk benefit analysis. In both cases, food and tissue therapy, specific measures should be taken to prevent any risk of infection in health care facilities. National authorities in the field of public health as well as in neonatology across countries should collaborate in the development of widely accepted recommendations for safe nutritional support on neonatal wards in hospitals.

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