Chylothorax in Infants and Nutrition with Low Fat Breast Milk

T. Springer, K. Nieschlo, W. Greimann, M. Abedini, M. Kostelka, I. Dähnert
Heart Center Leipzig, Pediatric Cardiology, Leipzig, Germany
 Asklepios Klinik St. Augustin, Pediatric Heart Center, St. Augustin, Germany
 Heart Center Leipzig, Pediatric Heart Surgery, Leipzig, Germany

Introduction

The incidence of post surgical chylothorax (CT) is 5-9,2% in neonatal heart surgery (10% at Heart Center Leipzig). CT is managed by drainage and low fat diet using Formula (“Basic-F”). Low fat diet is usually mandatory for few weeks to prevent re-accumulation of chyle. Advantages of breast milk especially for operated infants are well known. The possibility of using breast milk for this patients would be an eligible innovation. The trial ChyloBEST is focused on the management of CT with low fat breast milk (LFBM) as well as the cause of CT. Incidence of CT may be potentially related to increased complexity of neonatal heart surgery.

Methods

We report a prospective non-randomized multicenter (Leipzig, St. Augustin) pilot study. ChyloBEST includes neonates with congenital heart disease and post surgical CT (n=16). To receive LFBM human milk will undergo kryo centrifugation for 15 minutes at 2° C. The fatty layer will separate on the top of the milk sampling. It can be easily removed mechanically. The amount of fat, carbohydrates, proteins and energy were determined. By adding high quality fat additives (MCT-Oil) and common human milk fortified LFBM is prepared for feeding. To prove the efficacy of this diet following items were monitored: drained amount of pleural effusion, recurrence of CT, physical development within three month after diagnosis.

Previous results

By kryo centrifugation the fat content of breast milk could be reduced significantly. The content of other nutritional milk components of LFBM remained unaltered (mean Fat: 0.36%, mean Protein: 1.5%, mean Carbohydrate: 7.1%, mean Energy: 39.3 kcal/100ml). To date, 16 patients (n=5 Norwood-stage 1, n=6 arterial switch, n=1 TAPVD-repair, n=1 Glenn, n=1 CoA-resection, n=1 complex VSD-closure) received LFBM diet. CT resolved in all cases. There was no CT relapse when returning to full fat breast milk even in cases diet was performed less than six weeks. After LFBM diet ten patients (62.5%) achieved exclusive breastfeeding and well thriving.

Conclusion

Producing low fat breast milk is technically easily feasible. In case of post surgical Chylothorax low fat breast milk diet seems to be a reliable nutrition form including the advantages of breast milk feeding.