

ChyloBEST - Chylothorax in Infants and Nutrition with Low Fat Breast Milk

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Objectives:

The incidence of postoperative chylothorax (CT) is approximately 5-9,2 % in neonatal heart surgery (10 % at Heart Center Leipzig). CT is treated by drainage and low fat diet using Formula ("Basic-F"). Low fat diet is usually mandatory for six 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 a great development. The Trial ChyloBEST is focused on the treatment 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 diseases and postoperative CT (n = 16). To receive LFBM milk will undergo kryo centrifugation for 15 minutes at 2° Celsius. The fatty layer will separate on the top of the milk sampling. It can be easily removed mechanically. By adding high quality fat additives (MCT-Oil) and common human milk fortifier LFBM is prepared for feeding. The amount of fat, carbohydrates, proteins and energy were determined. To prove the efficacy of this diet following items were monitored: drained amount of pleural effusion, recurrence of CT, physical development within three months after diagnosis.

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 (meanFat: 0,36%*, meanProtein: 1,5%, meanCarbohydrate: 7,1%, meanEnergy: 39,3 kcal/100ml). To date, 16 patients (n=5 Norwood-stage1, n=6 arterial switch, n=1 TAPVD-redir., n=1 Glenn, n=1 TAC-correction, 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.

Conclusions:

Producing LFBM is technically easily feasible. In case of postoperative CT LFBM diet seems to be a reliable nutrition form including the advantages of breast milk feeding.