European Cystic Fibrosis Society

Journal of Cystic Fibrosis
The Official Journal of the European Cystic Fibrosis Society

Cystic Fibrosis Research News

Title:

THE EFFECT OF ENTERAL TUBE FEEDING IN CYSTIC FIBROSIS: A REGISTRY BASED STUDY

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What was your research question?

What is the influence of tube feeding on nutritional status and progression of disease in persons with cystic fibrosis (CF)?

Why is this important?

Tube feeding is often used as a last resort to improve the nutritional status of persons with CF. The focus on nutritional status in CF centers is high because of the association between poor nutritional status and worse lung function. However, there is an important delay between the observation of malnutrition and the start of starting tube feeding. This delay is the result of hesitation from care givers as well as people with CF. The guidelines state that tube feeding will improve measurements of nutritional status but conclude there is not enough data on whether it improves lung function.

What did you do?

We studied the Belgian CF registry for all patients receiving tube feeding and compared them to two matched controls (=comparable CF patients from the registry, not receiving tube feeding). All people in the registry between 2000 and 2013 were eligible if they had at least three observations pre- or post-matching. Those who underwent a lung transplantation before matching were excluded. We looked at nutritional status as change in body mass index (BMI z-score), growth, lung function as FEV1%, hospitalizations, intravenous antibiotic (IV AB) treatments, colonization of lungs by infectious germs, development of diabetes as well as transplantation and mortality before and after the start of tube feeding.

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What did you find?

From their first entry in the registry onwards, those who went on to receive tube feeding had worse a nutritional status as well as pulmonary function results, as compared to their matched controls. Their nutritional status and lung function declined (FEV1% - 1.52%/year) towards the year where tube feeding was started. Whereas controls had a stable nutritional status and a mild pulmonary function decline (-0.48%/year). For those who underwent tube feeding the number of hospitalizations and IV AB treatments increased towards the intervention year. Afterwards nutritional status improved but did not normalize, lung health stabilized at a lower level and hospitalizations decreased to the levels observed in their matched controls. Unfortunately, mortality (8.9% vs 1.8%) and transplantation (16.8% vs 2.7%) were higher in the tube feeding group.

What does this mean and reasons for caution?

The study suggests that starting tube feeding might decrease the need for hospitalization and stabilize the pulmonary function, however, in a registry missing data are an important issue. Furthermore, data were collected over several years where treatment changes confounding the results may have occurred. Finally, the registry does not contain data on motivation for starting tube feeding, amount of calories given or adherence. Therefore, it is very hard to control for the differences in why and how tube feeding was performed. Since mortality and transplantation leads to drop-out from further analysis, the sickest patients will not be included in the analysis. Therefor the benefits should also be looked at with reserve.

What's next?

Multicenter studies will be needed to follow the effects of tube feeding on nutritional status, body composition and pulmonary function as well as the development of complications such as CF related diabetes, liver disease and bone disease.

Original manuscript citation in PubMed

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