

Research Explained

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Feeding methods for infants with single ventricle physiology are associated with length of stay during stage 2 surgery hospitalization

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About this study

Why is this study important?

- Children with a functional single ventricle heart disease such as Hypoplastic Left Heart Syndrome need more energy from food in the “interstage period” between their first and second surgeries
- Children with these conditions often need to be fed by tube to make sure they grow and have enough energy. Tube feeding might be the only way these children receive food, or they might be fed by mouth and through a tube (supplemental tube feeding).
- Supplemental tube feeding can either be by a tube placed through the skin into the stomach by a surgeon (Gtube) or a tube that is put in the nose and goes into the stomach (NG) or small intestine (NJ)
- We do not know if the way in which children are fed makes any difference to how long they stay in hospital, or if the way in which a child is fed changes during their stay. This study helped find out if these things did make a difference.

How was this study performed?

- Patient records from the National Pediatric Cardiology Quality Improvement Collaborative’s (NPC-QIC) registry were used, including medical history and diagnosis, the kind of stage 2 surgery they had, and how long they stayed in the hospital.
- To be included, patients had to have had their stage 1 and stage 2 surgery
- Patients were put into five different groups, depending on how they were fed
 - Fed only by mouth
 - By mouth and NG or NJ
 - By mouth and Gtube
 - Only by NG or NJ
 - Only by Gtube

What was the goal of the study?

- To find out how the way in which a child was fed made any difference to the time they stayed in the hospital. The study also looked into whether or not the way children were fed changed during a hospital stay.

- The study also looked to see if the way a child was fed had an effect on when they had their second surgery.

What were the results of the research?

- 932 children were included in the study
- The way in which they were fed:
 - 514 (55%) patients completely fed by mouth
 - 108 (12%) patients fed by mouth and NG or NJ
 - 67 (7%) patients fed by mouth and Gtube
 - 91 (10%) patients fed only by NG or NJ tube
 - 152 (16%) patients fed only by Gtube
- Very few patients changed feeding route during the stage 2 hospitalization
- Babies that were fed using a Gtube only grew the least. Almost one fifth of these babies (17.8%) had a genetic syndrome such as Down's syndrome, which was the highest amount in all of the groups.
- Babies that were fed using a Gtube only were older and smaller when they had their 2nd surgery
- Babies who did not need to be tube fed stayed in hospital only about 2/3rds of the time that tube fed babies did
- Children who did not have any tube feeding did not spend as long in the hospital, and spent less time on a breathing machine.
- Children of different ages and weights when they had their second surgery stayed in hospital for the same amount of time.

What are the limitations of this study?

- This study only looked at past patient records and did not put patients into different groups to compare what happened with different ways of feeding.
- Hospitals have a lot of different practices about how they prefer babies to be fed, and some do not use all of the different types of tube feeding.
- The study was not able to look at the reasons why different children were fed different ways. There may be very important reasons why different ways of feeding are chosen which affect the length of stay and timing of surgery by themselves.
- Because the study only looked at children that went home after surgery, it could not find out if how a child was fed in the time between surgeries made any difference in survival.

What it all means

- The feeding route is unlikely to change from admission to discharge for stage 2 palliation
- Patients that require some tube feeding are more likely to have a breathing tube for longer and stay in the hospital for longer.
- The child's weight and age at the time of second surgery did not seem to affect how long they stayed in the hospital.
- Feeding route during the interstage period is based on many factors and more research is needed to find out if there are any best practices.