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Title:

DIAGNOSTIC ACCURACY AND DISTRESS ASSOCIATED WITH OROPHARYNGEAL SUCTION IN CYSTIC FIBROSIS

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What was your research question?

We wanted to find out whether samples obtained by suctioning secretions from the back of the mouth (oropharyngeal suction) of young children with CF matched up with samples obtained from a bronchoalveolar lavage (BAL). We also wanted to measure how distressed children were during this type of suction.

Why is this important?

It is important to check for bacteria in the lungs of people with CF. In older children, this is easy to do as they can cough up and spit out sputum. It is however, a challenge in young children with CF who cannot do this. The most accurate way of obtaining these samples in young children is BAL, but this procedure involves a general anaesthetic and the use of operating theatre time. Therefore, other methods of taking samples that can detect bacteria in the lungs are needed. One method that might be used is oropharyngeal suction, but we do not know how accurate this method is.

What did you do?

To take oropharyngeal suction samples, a suction catheter (a long flexible tube) was put in the back of the child's mouth to make them cough, secretions were then sucked out. After this the child went for a BAL, where they were put under general anaesthetic before a tube was inserted into the lungs and sputum was washed out. We compared the bacteria grown from these two samples. During oropharyngeal suction, the amount of distress that the child

experienced was also measured by a physiotherapist using a five point scale with levels from calm through to panic.

What did you find?

We collected 65 oropharyngeal suction samples and BAL samples on the same day. It was found that if a suction sample was negative, it was 95% likely that the BAL sample was also negative. That is, oropharyngeal suction samples were very good at checking there were no bacteria present. Unfortunately, because not many samples actually had bacteria in them, we were unable to provide a reliable prediction about whether or not a positive suction sample meant that a BAL would also be positive. We also found that children became very distressed during the collection of oropharyngeal suction samples and this distress was most marked in two and three year olds.

What does this mean and reasons for caution?

This means that when oropharyngeal suction samples are taken and found not to contain bacteria such as Pseudomonas aeruginosa, it is highly unlikely that the bacteria are present in the lungs, but it should be noted that there is still a small chance the bacteria could be present. The other reason for caution is that if we find bacteria in suction samples, we cannot accurately predict whether or not the same bacteria are present in the lungs. Since taking suction samples was very distressing in young children, healthcare professionals should consider less distressing methods or ways of reducing distress during this procedure.

What's next?

Ideally, more samples could be collected to help show whether positive suction samples can reliably predict positive BAL samples. It would also be interesting to find ways of making the suctioning technique less distressing for children or finding other techniques that are equally accurate and less distressing.

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