Cystic Fibrosis Research News

Title:

Exploring the implications of different approaches to estimate centre-level adherence using objective adherence data in an adult cystic fibrosis centre – a retrospective observational study

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What was your research question?

Cystic fibrosis (CF) centres vary in how they monitor people's adherence to prescribed treatment(s). We wanted to know if this can result in the CF centre having a different average level of treatment adherence.

Why is this important?

One measure of an effective CF centre is that the centre work to ensure people with CF are not only prescribed the best treatments, but also supported in adhering to these treatments. Monitoring how much treatments are adhered to is one measure of an excellent CF centre.

Because treatment adherence can be measured in different ways, we proposed a method of collecting standardised adherence data from different centres. We wanted to understand the differences in adherence level with our standardised method compared to existing methods of calculating adherence based on agreed prescriptions in a convenience sample.

What did you do?

We used adherence data captured with I-neb® (a type of nebuliser with data-logging capability) from Sheffield between 2013 and 2016 for this analysis. We compared how different adherence data would be if different calculation for centre-level adherence were applied.

Firstly, two different methods of processing adherence data were used – calculating adherence according to agreed prescriptions ("unadjusted adherence") and calculating adherence to reflect treatment effectiveness ("normative adherence"). Then three methods of sampling adherence data were used – convenience sample, including nebulisers not brought to clinic (downloaded during home visits) and including all adults with chronic Pseudomonas infection (including those not using any inhaled therapies).

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What did you find?
Normative adherence is significantly lower than unadjusted adherence. That means simply calculating adherence according to agreed prescriptions without adjusting for factors that influence treatment effectiveness can over-estimate treatment adherence within a centre. Centre-level adherence falls as we make more effort to ensure everyone who should be included is included and as we ensure that the best possible treatment is prescribed. That means adherence measurements which do not include everyone in a centre and do not aim for the most effective treatments can over-estimate centre-level adherence.

What does this mean and reasons for caution?
Centre comparisons may be affected by centres not prescribing the most effective treatment and failing to include all the patients in that measure. It is important to adopt a standardised approach to ensure that adherence measures from different centres are comparable. We propose an approach that combines calculating adherence to reflect treatment effectiveness ("normative adherence") with a sampling frame that includes all appropriate patients in a centre.
Our results are from a single centre and adults using non data-logging nebulisers were excluded. Different centres might find other issues to be important. Nonetheless, revisiting how adherence is measured is likely to be important in all centres.

What's next?
Another important stepping-stone towards reliable centre comparison is to understand the individual case level factors, which influence centre-level adherence. We will be analysing the demographic and treatment factors that influence adherence as we work towards developing a robust methodology to compare centres using adherence as the metric for improvement.

Original manuscript citation in PubMed
https://pubmed.ncbi.nlm.nih.gov/31678011-exploring-the-implications-of-different-approaches-to-estimate-centre-level-adherence-using-objective-adherence-data-in-an-adult-cystic-fibrosis-centre-a-retrospective-observational-study/?from_single_result=Exploring+the+implications+of+different+approaches+to+estimate+centre-level+adherence+using+objective+adherence+data+in+an+adult+cystic+fibrosis+centre+%E2%80%93+a+retrospective+observational+study