Cystic Fibrosis Research News

Title:
Sweat testing in the modern era: A national survey of sweat testing practice in the Republic of Ireland

Lay Title:
A review of sweat testing in Ireland in the era of modern CF care

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What was your research question?
Since the 1950's, the gold standard method for diagnosing Cystic Fibrosis is by measuring the amount of chloride in human sweat. Has the introduction of CF newborn screening had an effect on the pattern of performing sweat tests? Is sweat testing now being used in a new way, for monitoring the response to treatment with the new medications in CF care, the CFTR modulators?

Why is this important?
It is important to understand how new trends in the use of sweat tests are emerging, as this may influence how and where resources are allocated, and may influence how sweat test reports are generated.

What did you do?
We carried out a survey on the practice of sweat testing in Ireland. We asked each hospital in Ireland that performs sweat testing for CF, how many sweat tests they performed in 2018 and to provide details on they perform a sweat test. This data was then compared to a similar

survey carried out in Ireland in 2011 to identify if there has been a change in the amount of sweat tests performed and the methodology. We were particularly interested in whether the introduction of CF newborn screening in Ireland in 2011 affected sweat testing.

What did you find?

We found that there has been a large reduction in the number of sweat tests performed in Ireland since the 2011, when newborn screening for CF was introduced. There were 2555 sweat tests performed in 2011, which dropped by 61%, to 1007 in 2018. We also found that there are a variety of methods and procedures for sweat testing in Irish hospitals. We noticed a new, and unexpected, trend of clinicians using sweat test to monitor the treatment response of patients who started on new CFTR modulators.

What does this mean and reasons for caution?

Sweat testing is being used much less frequently to detect children with CF presenting with symptoms suggestive of CF. This reflects the success of the CF newborn screening programme in identifying infants at risk of CF, prior to them presenting with symptoms. The sweat test remains important in diagnosis, even for these very young infants, even in the era of genetic testing being available. We observed what appears to be a new role for sweat testing from its original intended purpose of diagnosing CF to its new use in monitoring the efficacy of new CF medicines. The hospitals that perform sweat testing do not have a unified approach to sweat testing and greater standardisation of methods is needed to maintain the highest quality of testing.

What's next?

Improvements in the quality of the Irish sweat testing service in Irish hospitals could be achieved by regular audits of sweat testing practices as well as establishing a standardised protocol for performing sweat testing in Ireland by implementation of consensus Irish or European guidelines on sweat testing.

Original manuscript citation in Pubmed

https://pubmed.ncbi.nlm.nih.gov/34620573/