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Title: **Post-tuberculosis lung function impairment in Gambian children**

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Type selection

Type selection: * Scientific research

Preferred presentation type: * Oral abstract presentation

Track selection

Track: * D8: Post-TB lung health

2nd Track:

Scientific Research Abstract Text

Background: * Lung function impairment following treatment of pulmonary tuberculosis (PTB) is increasingly being recognised as an important debilitating outcome in adults. However, data on prevalence and pattern of this complication are sparse among children who suffered from PTB. We present lung function data of children at least six months after completing PTB treatment in The Gambia.

Design/Methods: * We used portable spirometry to measure the lung function (FEV₁, FVC and FEV₁/FVC ratio) in children (aged 5 to 15 years) who were diagnosed with PTB between 2014 and 2019 and had completed anti-tuberculous treatment at least six-months before enrolment. A comparison group of children, who lived in the same compound as the post-TB cases but with no history of TB disease, were also enrolled. We defined lung function impairment as FEV₁, FVC or FEV₁/FVC below the lower limit of normal using the Global Lung Initiative African reference values.

Results: * We enrolled 68 post-TB cases (47% females) and 91 children in the comparison group (37% females). There was a statistically significant difference in the median (IQR) age of post-TB cases compared to the comparison group (8.9 years [IQR 7.1-11.2] vs 11.5 years [IQR 8.0-13.7], p-value 0.001). The post-TB cases had significantly lower age- and sex-standardised Z-scores for FEV₁, FVC and FEV₁/FVC ratio compared to the comparison group (Table). Lung function impairment was seen in 22/52 (42%) post-TB cases compared to 18/86 (21%) of the children in the comparison group (p-value 0.042). The majority of children with lung function impairment had a restrictive pattern (20/22 [91%] among the post-TB cases and 16/18 [89%] among the comparison group).

Table: Z-scores of lung function volumes in post-TB cases compared to comparison group

Variable	Post-TB cases (n=52)	Comparison group (n=86)	P-value
FEV ₁ Z-score, mean (SD)	-1.57 (1.02)	-0.85 (0.84)	<0.001
FVC Z-score, mean (SD)	-1.35 (1.02)	-0.89 (0.91)	0.007
FEV ₁ /FVC Z-score, mean (SD)	-0.60 (0.97)	-0.02 (0.81)	<0.001

Conclusions: * There is significant lung function impairment in children post-TB treatment. Prospective cohort studies are needed to better understand the evolution and risk factors of lung function impairment in children after completing treatment for PTB.

Summary

Summary: * We measured the lung function parameters in children at least six months after completing TB treatment and compared them to children living in the same compound but without a history of TB. We observed that there was significant lung function impairment among the post-TB cases.

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