

Pulmonary function by spirometry in children with perinatal HIV infection



Abstract

Background: There is increasing evidence that HIV-infected children and adolescents have high prevalence of lung function impairment, predominantly irreversible lower airway obstruction and reduced aerobic function. Lung function impairment was milder in cohorts of adolescents/children who had had earlier access to ART. Lung function impairment starts early in life in the absence of ART, as evidenced by the papers published in the pre-ART era. Achievement of viral suppression through ART may preserve lung function, though at a lower level compared to HIV-uninfected individuals.

Method: Study conducted at Roosevelt Hospital, from January to December 2019. Pulmonary function was measured through spirometry. Spirometry was performed in the pediatric pneumology clinic of the Roosevelt Hospital, on female and male patients ages 6 - 16 with a diagnosis of perinatal HIV infection on clinical monitoring. A random sample of 79 patients was taken out of a total of 270. The variables evaluated were age at diagnosis, viral load at the time of diagnosis, immune clinical stage at the time of diagnosis, and time of antiretroviral therapy and data were obtained from clinical records. Lung function parameters obtained through spirometry were: FEV1 (Forced expiratory volume in 1 second), FVC (Forced vital capacity) FEF 25-75 (Forced expiratory flow between 25% and 75% of forced vital capacity) FEV1/FVC (Relationship between forced expiratory volume and forced vital capacity).

Results: Out of 76 subjects, the spirometry failed to comply with reproducibility criteria in 14, either due to fatigue or inadequate technique; therefore, these were excluded from the analysis. Of the 62 patients included, the results obtained from spirometry are as follows: Normal 66% (n = 41), abnormal 34% (n = 21), of patients with abnormal spirometry it was found that the 33% (n = 7) with mild restriction, 14% (n = 3) with moderate restriction, 47% (n = 10) with mild obstruction and 6% (n = 1) with moderate obstruction.

Conclusion

- Decreased pulmonary function was prevalent in 34% of patients in this study, and a mild obstructive pattern was the most frequent form of alteration in the spirometry in 16% of cases.
- Viral loads greater than 100,000 copies/mm³ are associated with decreased pulmonary function, which was observed mainly in FEF 25-75.
- A clinically significant relationship was found between clinical stage at the time of diagnosis (stage C) and decreased pulmonary function; however, this was not statistically significant.
- No relationship was found between immunological stage at the time of diagnosis and pulmonary function

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Biography

Nancy Galvez is a pediatric infectologist graduated from the University of San Carlos de Guatemala and the head of Hospital Roosevelt outpatient pediatric infectology.



5th International Conference on Chronic Diseases | Webinar | April 26-27, 2021

Citation: Nancy J Galvez, Pulmonary function by spirometry in children with perinatal HIV infection, Chronic Diseases 2021, 5th International Conference on Chronic Diseases, Webinar, April 26-27, 2021, 03