## CLIPPINGS



**Aerosolization of** *Mycobacterium tuberculosis* **by tidal breathing** (Am J Respir Crit Care Med. 2022;206:206-16)

Coughing is believed to be an important source of transmission of Mycobacterium tuberculosis (Mtb) among susceptible individuals and house hold contacts. However, coughing alone might not explain the disease transmission in asymptomatic patients with pulmonary tuberculosis confirmed bacteriologically. Dinkele and colleagues tried to look at the aerosolization of Mtb in 38 patients with Gene-Xpert positive tuberculosis (TB) during three different maneuvers-tidal breathing, forced vital capacity maneuver and coughing. The proportion of respiratory particles of different sizes retrieved were similar in all three maneuvers: however, the number of particles were higher during cough maneuver compared to other maneuvers. In addition, the study also found that the return of positive results for Mtb was similar in all three maneuver. On modelling based on 24-hours breath and cough frequencies, it was found that tidal breathing per se could contribute to more than 90% of Mtb aerosols among symptomatic patients with tuberculosis, and could possibly act as an important contributor to TB transmission among active cases. The results of this study have implications for case detection among children in the household of asymptomatic TB patients.



**2022** ESC/ERS Guidelines for the diagnosis and treatment of pulmonary hypertension (Eur Respir J. 2022:2200879)

The following an excerpt from the recommendations for management of paediatric pulmonary hypertension (PH) proposed by ESC/ERS extrapolated from adult data. A full diagnostic workup including right heart catheterization (RHC) and workup for specific age-appropriate etiology and acute vasodilator testing are recommended to treat children with PH at centres with capability of managing pediatric PH (Class I, Level C evidence). For confirming a diagnosis of PH, RHC is recommended before starting PAH therapy (Class I, Level C evidence). In children with idiopathic or hereditary pulmonary arterial hypertension (PAH), acute vasoreactivity testing is recommended to document magnitude of benefit that might occur on starting calcium channel blockers (Class I, Level C evidence). A positive response to vasoreactivity testing is defined (for both children and adults) as reduction in mean pulmonary arterial pressure (mPAP) ≥10 mm Hg to reach an absolute value of mPAP ≤40 mm Hg with either a rise in cardiac output or unchanged cardiac output (Class I, Level C evidence). Screening for PH is recommended for infants with bronchopulmonary dysplasia (Class I, Level B evidence). In infants with bronchopulmonary dysplasia, treatment of lung disease and optimization of respiratory support is recommended before initiating PAH therapy (Class I, Level B evidence).



Height and bone mineral content after inhaled corticosteroid use in the first 6 years of life (Thorax 2022; 77:745-51)

Long-term steroid therapy is known to affect height velocity and bone mineral content (BMC). It is not known whether inhaled corticosteroids (ICS) also do the same, especially in children in the first six years of life. In this study, the authors had chosen two Danish "asthma in childhood" cohorts with children up to 6 years of age who had been on inhaled corticosteroid therapy and who have had a height and BMC determined at 6 years of age. About a third of the children in that cohort had received a cumulative dose of ICS equivalent to or more than 10 weeks of standard therapy. The study found an inverse relationship between ICS use and height per each year of standard treatment (-0.26; 95% CI -0.45 to -0.07) in children 0-6 years (P=0.006). This effect was mainly seen to be contributed by a group of children with ongoing treatment at 5-6 years of age. No significant association was found in those children who had discontinued treatment for at least one year before the age of six. Similarly, no association was seen between ICS use and BMC at age six. In conclusion it appears that ICS use in early childhood and continued usage at age 5-6 years is associated with decreased height at 6 years of age.



Effect of high-flow nasal cannula therapy vs continuous positive airway pressure therapy on liberation from respiratory support in acutely ill children admitted to pediatric critical care units (JAMA. 2022;328:162-72)

This RCT was conducted to answer a research question whether in acutely ill children assessed to require non-invasive respiratory support, is the use of high flow nasal cannula (HFNC) therapy as the initial therapy noninferior to the use of continuous positive airway pressure (CPAP) therapy in time to become free of all forms of respiratory support. The investigators randomized 600 acutely ill children from 24 pediatric intensive care units across the United Kingdom, who were assessed to require non-invasive respiratory support, to either receive HFNC or CPAP. The median time for liberation from all forms of respiratory support, which was the primary outcome of the study, was found to be 52.9 h in the HFNC group and 47.9 h in the CPAP group with a one sided 97.5% confidence limit for hazard ratio of 0.86 which fell within the non-inferiority margin of 0.75, meaning that initial use of HFNC in a critically ill child assessed to require non-invasive respiratory support is non inferior to initial use of CPAP. The study also assessed about seven secondary outcomes including mortality at discharge from the intensive care unit, intubation within 48 hours, need for sedation, mean duration of critical care stay, mean duration of acute hospital stay. It was found that need for sedation, mean duration of critical care unit stay, and mean duration of acute hospital stay were significantly lower in the HFNC group compared to the CPAP group.

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