Improved Oxygenation and Increased Comfort: A Great Combination

Devices for oxygen therapy in adults have been largely unchanged since the mid 1970s when I graduated from respiratory therapy school. Recently, however, the high-flow nasal cannula (HFNC) with heated humidification became available. My first experience with HFNC was in a patient with pulmonary fibrosis. This patient refused to have the HFNC exchanged to a nonrebreathing mask because his dyspnea increased when the devices were switched. I found this surprising because the nonrebreathing mask has historically been used to deliver the highest fraction of inspired oxygen (F\textsubscript{IO\textsubscript{2}}) of all oxygen therapy devices.\textsuperscript{1}

The flow from an adult-size nasal cannula had been limited to 6 L/min, and it was suggested that a higher flow would increase the delivered oxygen concentration very little and cause nasal mucosal irritation due to drying.\textsuperscript{1} HFNC is new enough that it was not mentioned until the latest editions of respiratory therapy textbooks.\textsuperscript{2}

Wettstein et al\textsuperscript{3} measured the F\textsubscript{IO\textsubscript{2}}, delivered from low-flow nasal cannula and HFNC in normal subjects, and reported a maximum F\textsubscript{IO\textsubscript{2}} of about 0.75 at flows up to 15 L/min. The HFNC can also provide a small amount of continuous positive airway pressure that may also improve oxygenation.\textsuperscript{4} This has been reported in pediatric and adult patients.\textsuperscript{5} Other mechanisms of benefit from HFNC may include flushing of the nasopharyngeal dead space, reduced nasal resistance, and reduced energy associated with gas conditioning.\textsuperscript{6}

\textbf{REFERENCES}


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