USE OF A RESERVOIR NASAL CANNULA IN HOSPITALIZED PATIENTS WITH REFRACTORY HYPOXEMIA

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Purpose: The purpose of this study was to determine if a reservoir nasal cannula could effectively replace an oxygen mask in hospitalized patients who require a high FiO_2 ($\geq .50$) and who do not require endotracheal intubation or mechanical ventilation. These patients are often alert and could eat, utilize incentive spirometry for deep breathing, experienced fewer episodes of transient hypoxemia, and be more comfortable if the oxygen mask could be replaced by a nasal cannula. However, conventional nasal cannulae usually deliver less than 50% oxygen and are not effective in correcting hypoxemia in these patients.

Methods: We studied ten consecutive patients who were clinically stable for at least 24 hours and who were receiving $\geq 50\%$ oxygen by mask using an oxygen blender and a flow of at least 80L/min (high-flow system) with SpO_2 of 91-92%. The patients were then switched to a reservoir nasal cannula (**Oxymizer®** by CHAD THERAPEUTICS, INC.) with flow adjusted from 6L to 8L/min to attempt to match the SpO_2 level being achieved by the oxygen mask. Twenty-four hours later the acceptability of the reservoir cannula was assessed by each patient.

Results: In nine of ten trials, the **Oxymizer®** provided equal SpO_2 levels, with FiO_2 ranging from .50 to .65 by mask. In one subject receiving 65% oxygen, the highest SpO_2 achieved with the **Oxymizer®** was 86%. Assessment of the patients after 24 hours indicated that in all subjects there was unequivocal preference for the **Oxymizer®** nasal cannula.

Conclusion: A reservoir nasal cannula can be used to correct hypoxemia in most patients requiring an FiO_2 of .50 or greater. The **Oxymizer®** was more comfortable and clinically preferable to an oxygen mask.

Clinical Implications: The use of a reservoir cannula should be considered as an alternative to a mask in hospitalized patients who have refractory hypoxemia and require 50% or more oxygen.