



HillromTM

Case Study:
RESPIRATORY FAILURE – GROOMS



USE OF CONTINUOUS HIGH-FREQUENCY OSCILLATION

in respiratory failure and postoperative patients

Report of three patients with respiratory failure or postoperative pulmonary complications illustrating improved lung aeration and secretion clearance after implementing continuous high-frequency oscillation (CHFO) via The MetaNeb[®] System.



CASE STUDY 1 OVERVIEW

21-year-old female status post-lung transplant admitted via ER with acute respiratory failure requiring invasive mechanical ventilation (MV).

- Severe hypercarbia resultant of profound alveolar derecruitment and increased physiological dead space likely caused by atelectasis secondary to mucous plugging failed to respond to standard interventions.
- The MetaNeb System initiated Q4 around the clock in-line with MV.
- CHFO continued until extubation 5 days later.

21 year-old female with respiratory failure

OUTCOMES

Chest X-ray (CXR) after 1 day of The MetaNeb System revealed improved aeration and reduction in retained secretions.

Gas exchange and breath sounds improved.

Discharged in good condition after 9 days.

CASE STUDY 2 OVERVIEW

57-year-old male admitted via ER with cardiac arrest and respiratory failure.

- Following stabilization, cardiac catheterization with an MV initiated.
- CXR on Day 1 revealed subsegmental atelectasis in right middle lobe (RML).
- ACT administered 5x for minimum 10-minute sessions at highest percussive frequency setting.
- The MetaNeb System treatment continued after extubation on Day 2.

57 year-old male with respiratory failure

OUTCOMES

Addition of The MetaNeb® System in-line with MV was the significant variable in this case.

After 5 treatments, Day 2 CXR showed resolution of RML atelectasis.

↑ Increase in P/FR ratio.

↓ Decrease in FiO₂.

Discharge CXR (Day 6) showed sustained resolution of atelectasis.

CASE STUDY 3 OVERVIEW

46-year-old male admitted for myocardial infarction undergoing CABG surgery on Day 3.

- Returned from OR and decanulated after 4 hours.
- The MetaNeb® System initiated on PO Day 1 to resolve atelectasis and improve aeration.
- Patient returned to OR on same day due to re-bleed.
- Post-extubation CXR on Day 2 showed bibasilar atelectasis with low lung volumes.
- The MetaNeb System reinitiated and continued until discharge.

46 year-old male
postoperative patient

OUTCOMES

Low lung volumes and atelectasis treated effectively with CHFO.

Day 4 CXR showed continued improvement in incentive spirometry (IS) and resolution of atelectasis after 5 MetaNeb System treatments.

EVIDENCE



Pre-MetaNeb® System



18 Hours Post-MetaNeb System



Hillrom™

For more information, please contact your Hillrom sales representative at 1-800-426-4224.

respiratorycare.hill-rom.com

References

¹ Grooms D, Swedish S, Price S. Case series: use of continuous high frequency oscillation (CHFO) in respiratory failure and post-operative patients. *Respiratory Therapy*. 2017;12(2):14-16.

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