DOES THE NEBULIZER **MAKE A DIFFERENCE** WHEN **DELIVERING** TOBRAMYCIN SOLUTION?

CONSIDER THIS...

- **Tobramycin Inhalation Solution (TIS) was specifically formulated to be used exclusively with the PARI LC PLUS® Nebulizer handset.***

- **Efficacy, safety and toxicity data for nebulized tobramycin are based on pivotal studies in adults and children using the PARI LC PLUS nebulizer.[9,10]**
  Prescribing information specifies the LC PLUS as the only approved delivery device for all TIS drugs.[2,4,8] Though nebulizer technology has advanced substantially, the FDA will not approve new delivery devices unless a clinical trial program has shown safety and efficacy of the new drug-device combination. To date, no other nebulizer has demonstrated safety and efficacy for TIS. Therefore, use of unproven nebulizers remains off-label to the FDA product label for Tobramycin Inhalation Solution and the responsibility associated with recommending them lies solely with the prescriber.[6]

- **The efficacy of aerosolized antibiotics correlates with the amount of medication deposited in the patient's lungs.**
  The amount of medication deposited in the lungs depends on three main parameters, airway anatomy, patient ventilation, and aerosol characteristics. As a result, prescribing the proper nebulizer system is the only way the practitioner can optimize aerosol delivery. Otherwise, the risk of a sub-optimal dose with other nebulizers is significant.[4,5]

- **Nebulizer efficiency is highly variable. Nebulizer performance that differs from the approved device may change drug distribution in the lungs, potentially impacting safety and efficacy.**
  Changing any variable in a drug delivery system may have a significant impact on lung deposition and clinical effect of the aerosolized tobramycin treatment.[4,5] When a particular device works well with one drug, it does not mean it is well-suited for all inhaled drugs. The amount of drug available for lung deposition is not predictable unless that particular device has been studied with the drug of interest in well-controlled clinical trials.[1,2,9,11]

  Nebulizers producing a large percentage of smaller aerosol particles compared to the approved delivery device may increase drug distribution in small airways and facilitate systemic absorption and exposure, which are associated with renal and oto-toxicity.[11] The LC PLUS is well documented in delivering aerosolized tobramycin to the site of infection in the airways rather than the alveoli. The LC PLUS has demonstrated limited systemic absorption in clinical trials.[9]

- **In the case of CF, it is the concentration of drug in the sputum that matters clinically.[5]**
  Therapeutic effects of inhaled tobramycin depend on achieving adequate drug concentrations in the airways and in infected sputum to kill the microbes.[6] The TIS concentration may decrease below the MIC90 (minimum inhibitory concentration to kill 90% of microbes) when moving deeper in the airway, which fosters the development of antimicrobial resistance.

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* PARI LC PLUS Reusable Nebulizer

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PARI Respiratory Equipment, Inc.
Tel: 1-800-FAST-NEB (327-8632)
product.info@pari.com
www.pari.com | Midlothian, VA 23112