Use of different preparations of tobramycin solution for inhalation (TSI) in the UK

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TSI is recommended for CF patients chronically infected with Pseudomonas aeruginosa, since it improves lung function and reduces pulmonary exacerbations. Despite this, its uptake (both TOBI® and isotonic Bramitob®) in the UK is poor. To study this, we surveyed 30 specialist UK CF centres, looking at reasons for TSI use, type and regime used, funding issues, whether a trial of therapy was considered and side-effects (SEs): 23 (77%) responded. Although 16 (70%) used TSI, 12 (75%) only did so when nebulised colomycin failed or was not tolerated. Of these, 10 (65%) only used TOBI® and of those 6 who used both, Bramitob® was first line in 1 (17%). As regards prescription, 13 (57%) followed the licensed alternate month regime, 2 (9%) alternated with colomycin, and the remainder a variable frequency including continuous use.

TSI was funded by primary care in 13 (57%), secondary care in 3 (13%), but the remainder were unclear. Funding was dealt with by the pharmacy in 9 (39%), the finance team in 3 (13%), and in 3 (13%) by the CF team. As regards a therapy trial, 11 units did so with objective measures, but only 2 units carried out reviews at 3 and 6 months respectively. Overall, TSI tolerability was good but common SEs included: bad taste, chest tightness, bronchoconstriction and haemoptysis: these were more common with TOBI®.

Throughout the UK there seems to be a wide variation in the use of TSI in CF units, and funding streams are not clear − this is particularly worrying considering its cost. Since more expensive nebulised therapies are likely to become available in the near future, a coordinated approach to their use and funding is merited within the CF community.

Effect of saline concentration on the minimum inhibitory concentration of colistimethate sodium and tobramycin

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Hypertonic saline has been used to facilitate the clearance of mucus from the lungs in patients with cystic fibrosis (CF). Part of the clinical benefit attributed to hypertonic saline might be due to NaCl affecting motility and growth of P. aeruginosa. The aim of this study was to determine the effect of NaCl upon the minimum inhibitory concentration (MIC) of colistimethate sodium and tobramycin. P. aeruginosa or E. coli were used with iso-sensetest broth to prepare inoculum solutions. The broth contained 0.3% NaCl, the lowest concentration of NaCl used in the tests. Sterile tubes were prepared with the concentration ranges, 128–0 mg/L for colistimethate sodium and 32–0 mg/L for tobramycin, with added NaCl concentrations of 0.3%, 0.9%, 2.3% or 4.05%. An inoculum of either P aeruginosa or E. coli was added and the tubes then incubated at 35–37°C for 18–20h. This process was performed in triplicate for each antibiotic/NaCl/bacteria combination. The addition of NaCl to the test solution had a synergistic effect on the MIC of colistimethate sodium needed to prevent growth of P aeruginosa at the 0.05% concentration and E. coli at all concentrations. NaCl had an antagonistic effect on the MIC of tobramycin at all concentrations; this was most marked against E. coli. The addition of NaCl to the growth environment had a synergistic effect upon the MIC of colistimethate sodium against P aeruginosa and E. coli growth, in contrast to an antagonistic effect upon the MIC of tobramycin. The effect was concentration dependent for both bacteria. These results may have implications for the timing of inhaled saline-based treatments in patients with CF using certain antibiotic formulations.