Treatment with 0.2% NVC-422 reduced P. mirabilis catheter blockage and encrustation (UCBE). Catheters blocked. The pH of the effluent, CFU counts and the time to catheter blockage were recorded. Blocked catheters were examined using Stereo Zoom and scanning electron microscopy. Results: In control samples the urinary pH increased from 6 to 9, high CFU counts were observed. In catheters treated with 0.2% NVC-422 formulated in acetate saline at pH 4, 5 or 6, CFU counts were reduced and minimal residual urine collecting in the glass chamber. The pH of the effluent, CFU counts and the time to catheter blockage were recorded. Blocked catheters were examined using Stereo Zoom and scanning electron microscopy. Results: In control samples the urinary pH increased from 6 to 9, high CFU counts were observed. 

Catheter Blockage Time

Table 1. Catheter blockage time. Catheters irrigated with control solution (sucrose buffered saline) showed an average of 2.7 days and the pH of artificial urine shifted from pH 4 to 9. The catheters treated with NVC-422 remained patent throughout the 15 day experimental period. The pH of artificial urine remained between 7.5-8.0. Concentration of NVC-422 instilled was based on safety and efficacy data.

Conclusions

1. Treatment with 0.2% NVC-422 reduced P. mirabilis catheter blockage and encrustation (UCBE).
2. Treatment with 0.2% NVC-422 reduced crystalline encrustation in the bladder model and maintained catheter patency for greater than 15 days.
3. NVC-422 irrigation solution has utility for the prevention and treatment of urinary catheter blockage and encrustation.

References