

RISK STRATIFICATION OF CAPD PERITONITIS: THE IMPORTANCE OF EFFLUENT WHITE CELL COUNT

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PROBLEM: There is little evidence on whether the white blood cell count (WBC) effluent can predict catheter loss associated with peritonitis in peritoneal dialysis (PD) patients.

PURPOSE: This retrospective analysis of prospectively collected data was designed to examine the relationship between effluent WBC, co-morbidity and outcome in PD peritonitis.

DESIGN: All peritonitis episodes in a single centre over the period Jan 2003 - Sep 2008 were studied. Study variables included diabetes status, effluent WBC at presentation, involvement of exit site or tunnel, microbiology and antibiotic regime. Outcome measures included primary cure rate (no recurrence of peritonitis within 28 days) and catheter survival. In our unit effluent WBC has not been used to influence management protocols or decision making.

FINDINGS: 185 episodes of peritonitis were observed in 99 patients over a 5 year period (2452 patient months). The primary cure rate with preservation of the catheter was 64%. 44 episodes resulted in catheter removal (24%) either with the first episode of peritonitis (82%) or with a recurrence (18%). *Staphylococcus aureus*, *Pseudomonas* species, and *Serratia* species infections were associated with less than 25% primary cure rates whilst coagulase negative *Staphylococcus*, *Staphylococcus epidermidis* and *Streptococcus* species infections were associated with greater than 90% primary cure rates.

Exit site and / or tunnel involvement was observed in 17% of peritonitis episodes and of these 61% of cases resulted in PD catheter removal. 36% of peritonitis episodes occurred in diabetic patients. However the percentage of PD catheters removed was similar in both diabetes and non-diabetes groups (23% and 24%).

There was a strongly positive correlation between the initial effluent white cell count and PD catheter removal (graphs available): WCC < 1000 = PD catheter removed in 13% of cases; WCC 1000-5000 = 25%; WCC 5000-10000 = 44%; WCC > 10000 = 60%. Vancomycin / ciprofloxacin combination had the highest primary cure rate (71%) compared to vancomycin / gentamicin combination (63.5%) and vancomycin alone (50%).

CONCLUSION: The initial effluent white cell count was a strong predictor of treatment failure and catheter loss, as were type of organism and exit site/tunnel infection. The presence of diabetes did not affect the outcome of peritonitis.

RELEVANCE: These findings demonstrate the importance of effluent WBC in risk stratifying peritonitis episodes, particularly when considering the need for intensive antibiotic therapy and early catheter removal.