Abstract No. : A119
Theme : Access, Peritonitis and Exit Site Infection

Predictive value of Dialysate Cell Counts in Peritonitis Complicating Peritoneal Dialysis

Cheung, K.K.T., Chow, K.M., Szeto, C.C., Law, M.C., Leung, C.B., Li, P.K.T.; Prince of Wales Hospital, Chinese University of Hong Kong, Shatin, Hong Kong

Background: Early prediction of outcomes has major potential implications regarding the management of dialysis-related peritonitis. Methods: We evaluated the outcomes of 565 consecutive episodes of peritonitis complicating peritoneal dialysis between August 2001 and July 2005, in relation to the dialysate cell counts. Discriminatory power, based on the area under the receiver-operating characteristic (ROC) curves, of the cell counts was assessed. Results: During the study period, 565 episodes of peritonitis were included for analysis, of whom 465 episodes had treatment success defined as complete resolution of peritonitis without the need for Tenckhoff catheter removal; of the remaining 100 episodes (treatment failure), 70 episodes required Tenckhoff catheter removal and 30 episodes had peritonitis-related death. The peritoneal dialysate total white blood cell count on day 3 of peritonitis predicted treatment failure independent of standard risk factors, and it had a higher area under the ROC curve than the dialysate white cell count on day 1 (0.80 versus 0.58, $P < 0.0001$). Using a peritoneal dialysate white count cut-point ≥ 1090 per cubic millimeter on day 3, the sensitivity was 75% and the specificity was 74% for the prediction of treatment failure (defined as catheter loss or peritonitis-related death). In multiple logistic regression analyses, peritoneal dialysate white count ≥ 1090 per cubic millimeter on day 3 was an independent prognostic marker for treatment failure after adjustment for conventional risk factors (HR, 4.71; 95% confidence interval 2.07 10.7; $P < 0.0001$). Number of years on peritoneal dialysis, diabetes mellitus, gram-negative organisms, Pseudomonas, fungal or Mycobacterium species, and the presence of peritoneal dialysate white count > 100 per cubic millimeter for more than 5 days, were other independent risk factors predictive of treatment failure. Conclusions: We have demonstrated the superiority of peritoneal dialysate white cell count on day 3 to predict outcomes of dialysis-related peritonitis. Our results support calls attention to the value of validating prognostic factors of peritonitis complicating peritoneal dialysis.