



EFFECT OF BLACK PARTICLES IN PERITONEAL DIALYSIS CATHETER TO VISCERAL ORGANS OF WISTAR RATS

Panomrerngsak A¹, Jeungsmarn P¹, Sriudom K¹, Manuyakorn A² and Sangjun N³

¹ CAPD service and training center Banphaeo hospital Prommitr branch, Bangkok, Thailand , ² Department of pathology, Siriraj hospital, Bangkok, Thailand, ³ Department of Laboratory Animals, Division of Analysis, Armed Forces Research Institute of Medical Sciences.

Abstract

Background: Peritoneal dialysis is increasing from past to present. Our center has performed peritoneal dialysis for over 800 patients since February 2008. Until September 2008 foreign material were found in Tenckhoff catheters and transfer sets in more than 100 patients. We named it as "black particle". Despite having extensive investigation, we could not know its pathogenesis. Our purpose of study is to demonstrate its in vivo effect to visceral organs of Wistar rats.

Objectives: To study effect of black particle to visceral organs of Wistar rats.

Methods: 44 Wistar rats age at least 8 weeks were regular fed until weight 200-250 g before enrolled to the study. They were divided to 4 groups A, B, C and D. Group A rat (n=10) were injected 1.36%G peritoneal dialysis fluid 5 ml once a week. Group B rat (n=15) were injected 1.36% G peritoneal fluid 5 ml mixed with 1 piece of black particle once a week. Group C rat (n=15) were injected 1.36%G peritoneal fluid 5 ml mixed with 2 pieces of black particle once a week. Group D rat (n=4) were control group. The environment and food were adjusted to all rats in the same manner. After 12, 24, 36 and 48 weeks, rats were sacrificed and their visceral organs were examined by veterinary pathologist.

Results: All rats were healthy. No black particle was identified in the peritoneal cavity of the rats. No localized inflammation of the injected site. No pathological difference of the visceral organs including kidney, liver, spleen, peritoneum, pancreas, mesenteric lymph node, small bowel, large bowel and sex organs. But in the black particle groups there were more inflammation and necrosis when compared to control group but the difference did not reach statistical significant ($p= 0.456$ Fisher's exact test). One rat had abscess in the fatty tissue which should be related to bacterial contamination during intraperitoneal injection.

Conclusions: Black particle are foreign materials found in Tenckhoff catheter and transfer set of CAPD patients. Our study could not demonstrate its negative effects to visceral organs of the rat. But it is only one invivo study to reassure our patients. However long term and better study designs are need to demonstrate its effects in animal and human.

5th Asian Chapter Meeting International Society for Peritoneal Dialysis, 6-8 October 2011, poster presentation