A RETROSPECTIVE COHORT STUDY ON THE EFFECTIVENESS OF
AUTOMATED PERITONEAL DIALYSIS IN THE MANAGEMENT OF
ACUTE RENAL FAILURE IN KENYA

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT FOR THE
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ABSTRACT

Background: Automated peritoneal dialysis (APD) is peritoneal dialysis (PD) using cycler machines which can deliver predetermined volumes of dialysate into the peritoneal cavity and then drain it after a programmed dwell time. Anochie and eke (2006) reported that one of the advantages of APD is adequacy of dialysis.

Problem statement: Acute renal failure (ARF) is a common threat accounting to mortality rate of 42% to 88%. It is among the leading causes of mortality worldwide, Kenya included. There are few dialysis centres in Kenya with few options of renal replacement therapy (RRT) modalities, the main one being haemodialysis (HD). PD has scarcely been used in Kenya. Patients have had to travel for long distances to queue for HD machines leading to a delay in treatment and congestion in the two Government HD centres available.

Justification: The results of the study will help guide the policy makers to consider other affordable and accessible RRT options, help encourage the practice of (APD) in various hospitals and become a baseline data for further researches since no other research has been done on APD in Kenya. Mendelssohn et al (2002) reported that there was a big gap between PD and HD which made them recommend further research in this field.

Main objective: The study was aimed at determining the effectiveness of APD in the management of acute renal failure (ARF) in Kenya.

Methodology
The study design was a retrospective cohort study. The study population was children and adults with ARF who were put on APD from the year 2006 -2010. The sample size was calculated using the Fisher's formula where a sample of 35 subjects was arrived at. An analysis of the patients' data base of the APD program adopted in five Hospitals where APD is done in Nairobi Kenya was carried out. Convenience sampling method was used. Use of quantitative techniques of data collection was carried out using a structured questionnaire. Quantitative data was entered, cleaned and analyzed using a computer software package, SPSS. Paired t-test to determine
biochemistry parameter changes between before APD commencement to the time of termination of APD / death parameters was carried out. The statistical significance was set up at p<0.05.

**Results:** The mean Serum Creatinine, Blood Urea Nitrogen (BUN), Serum Potassium prior to APD was comparatively higher than the mean on APD discontinuation, discharge or death. The mean 24-hour urine output prior to APD was 100.8 and after APD discontinuation was 482.5 which were quite significant. The mortality rate was 37% (n=13) while survival rate was 63% (n=22) where patients were treated and discharged. Mater hospital was the leading in the use of APD with 16 patients representing 45.75%.

**Discussion:** The results were statistically significant in that in all variables, patients who had abnormal values significantly improved at the point of APD discontinuation. This is in consistent with the finding of Kapoor (2007) who reported that APD enables continuous correction of acid-base status and electrolyte imbalance as well as the gradual removal of nitrogenous waste products. Dwinell & Anderson (1999) reported that dialysis outcome is shown by a reduction in BUN, serum potassium, serum creatinine.

**Conclusion:** There was clear evidence that APD is an effective mode of RRT in the management of ARF.

**Recommendations:** This treatment modality would be very vital for advocating for APD use especially in district Hospitals and even in the home settings.