

## Drain Pain a Bane of Peritoneal Dialysis: Prevalence in a Cohort of Automated Peritoneal Dialysis Patients.

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### Abstract:

#### Introduction:

Drain pain in peritoneal dialysis is a frequent occurrence that requires readjustment of catheter and some cases transfer to hemodialysis.

**Objectives:** This study looks at the drain pain among patients on peritoneal dialysis at a tertiary care center.

**Results:** 73 patients on automated peritoneal dialysis were evaluated retrospectively for drain pain. Male 47(64%) were males. Total of 15 (20%) patients had drain pain. The drain pain was both present in continuous ambulatory peritoneal dialysis exchanges and automated peritoneal dialysis sessions. All (100%) patients continued with APD. No patient had to be transferred to hemodialysis.

**Conclusion:** Occurrence of drain pain in our cohort of patients undergoing APD is similar to the reports in the literature.

**Key words:** dialysis, peritoneal dialysis, drain pain, constipation, increased intraperitoneal volume.

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### Introduction:

Peritoneal dialysis is gaining its due place in the renal replacement therapy option as the first line of management for dialysis. It is however not fraught with adverse effects. In general PD is well tolerated and one of the complication occurring in about 20% of the patients is drain pain.<sup>1</sup> Drain pain has been associated with depression, poor quality of life and can be a reason enough for repositioning of catheter or ultimately switch to hemodialysis in some patients.<sup>2</sup>

Many patients do experience drain pain especially at initial drain when abdomen has been dry during the previous day, nevertheless they get used to it gradually.<sup>3</sup>

This is the first study from Pakistan looking at the prevalence of drain pain among patients undergoing automated PD (APD).

### Methods:

Clinical data was maintained in a local registry by Byonyks medical devices (Lahore, Pakistan) for patients undergoing APD with Byonyks PD cycler. IRB approval was obtained for the study.

**Type of study:** This was a cross-sectional retrospective study of all the patients in the database. Patients included were from Bahria International Hospital, Mayo hospital, Lahore General Hospital, Ali Fatima hospital and Jinnah hospital.

**Data collection:** All patients enrolled in the APD program had their clinical and demographic data collected prospectively in a database. This data was then evaluated for the presence of drain pain as mentioned in the clinical issues.

**Statistical analysis:** all analysis was done using SPSS (version 28.0, IBM Corp. Armonk, NY, USA) Mean and standard deviation is provided. Odds ratio were calculated for gender and age of the patients.

### Results:

In total 74 patients were undergoing APD at these six hospitals. Mean age was  $54 \pm 13.8$  years and males were 47 (64%). Drain pain was observed in 15 (20%) patients while majority with drain pain were males 9 (60%). Patients experiencing drain pain, experienced it while on CAPD and APD both. Two patients had ADPKD with large kidneys as a cause of drain pain. Their pain lessened but never improved with decreasing the dwell volume. None of the patients who experienced drain pain switched modality to hemodialysis. Drain pain in general was tolerated easily in all except two female patients.

Data was analyzed for relation of age or gender to drain pain. Gender had an odds ratio of 0.86 with confidence interval (0.2650 to 2.8219) suggesting lack of statistical significance. Similarly age related ODDS ratio was 0.99 with confidence interval (0.9520 to 1.0335) suggesting no statistical significance. Tidal APD was not available and patients with significant drain pain were asked to stop therapy and skip the end drain period to next cycle. Built in logic for prevention of intraperitoneal positive pressure ensured the safety of the patient with this option.

### Discussion

We found the prevalence of drain pain to be 20%, similar to reported in the literature. We did not find any statistical significance with age and gender. Drain pain is supposedly more common among younger patients and females.<sup>1</sup> The lack of significance in relation to age and gender in our study could be due to less number of patients in our study.

Drain pain has been a significant adverse event in patients undergoing PD and 20-30% patients develop drain pain same as in our study.<sup>1</sup> Recently published Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) study included a total of 2,691 peritoneal dialysis patients from seven countries, 871 patients (32%) reported experiencing drain pain during peritoneal dialysis.<sup>1</sup> In this

study 996 (37%) patients were undergoing CAPD and 1691 (63%) patients were undergoing APD. Drain pain was more common among APD than CAPD patients 41% vs 18%, respectively. In this study ADPKD patients, female gender and APD had an odds ratio to develop drain pain. Two of our patients had ADPKD and both manifested drain pain. APD patients in PDOPPS study had higher frequency of drain pain, 41% whereas our APD cohort reported drain pain in only 20%. Since there are many other factors that need to be studied carefully including catheter placement before one can identify APD as a risk factor for drain pain.

In Pakistan PD has seen a resurgence in recent years, thanks to the efforts of International Society of Peritoneal Dialysis under the leadership of Dr Edwina Brown.<sup>4</sup> This interest in PD was associated with a learning curve in the placement of PD catheter and its associated complications including possibly drain pain, although we did not specifically look for this association in the current study. A Canadian study also highlights the frequency of drain pain varying widely among centers based on the expertise for catheter placement and how it is practiced based on international recommendations.<sup>5</sup>

Patients may report drain pain in the early days of PD, less than 3 months. A Chinese study noted a higher incidence of drain pain up to 59% in the first three months and later declining to 19.5%.<sup>6</sup> This may be related to the patient's apprehension, abdominal distention, constipation and catheter-related issues more frequently occurring in the early months of initiation of PD.

**Conclusion:** Drain pain is a concern among patients undergoing APD. The prevalence in our patients is less than reported in the literature. Mitigation of drain pain with future interventions and innovations are needed.

**Conflict of interest:** None declared.

## References

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