Fluoroscopic-Guided Peritoneal Dialysis Catheter Placement Showed Non-Inferiority to Surgical Placement and Reduced Burden in Acute Haemodialysis

Dr. Anthony Chan
Resident Specialist
Division of Nephrology, Department of Medicine
Queen Mary Hospital

Background of Developing the New Service

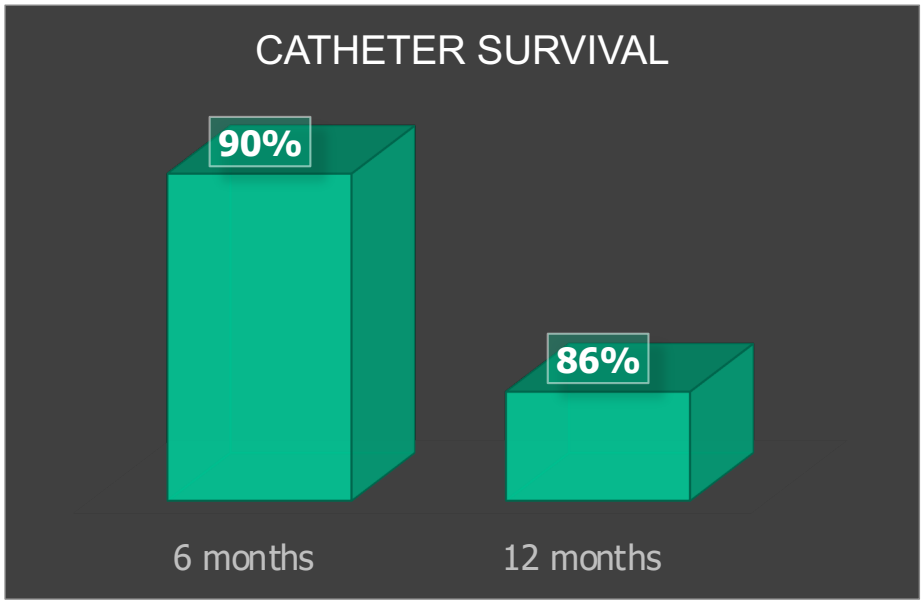
- Planning started in late 2021 (During the COVID-19 Pandemic)
- Reduction of service, especially the operating theatres
- The waiting time for PD insertion can be variable, and lack of flexibility
- Increase in workload in the haemodialysis unit
  - Increased waiting time leads to more patients being “crash-landed” and requiring temporary haemodialysis.
  - Patients who were on PD before (catheter removed due to refractory CAPD peritonitis) or failed kidney transplants.
  - Accumulation of temporary haemodialysis required conversion to long-term peritoneal dialysis.
- A sustainable service to be operated and led by the nephrologists

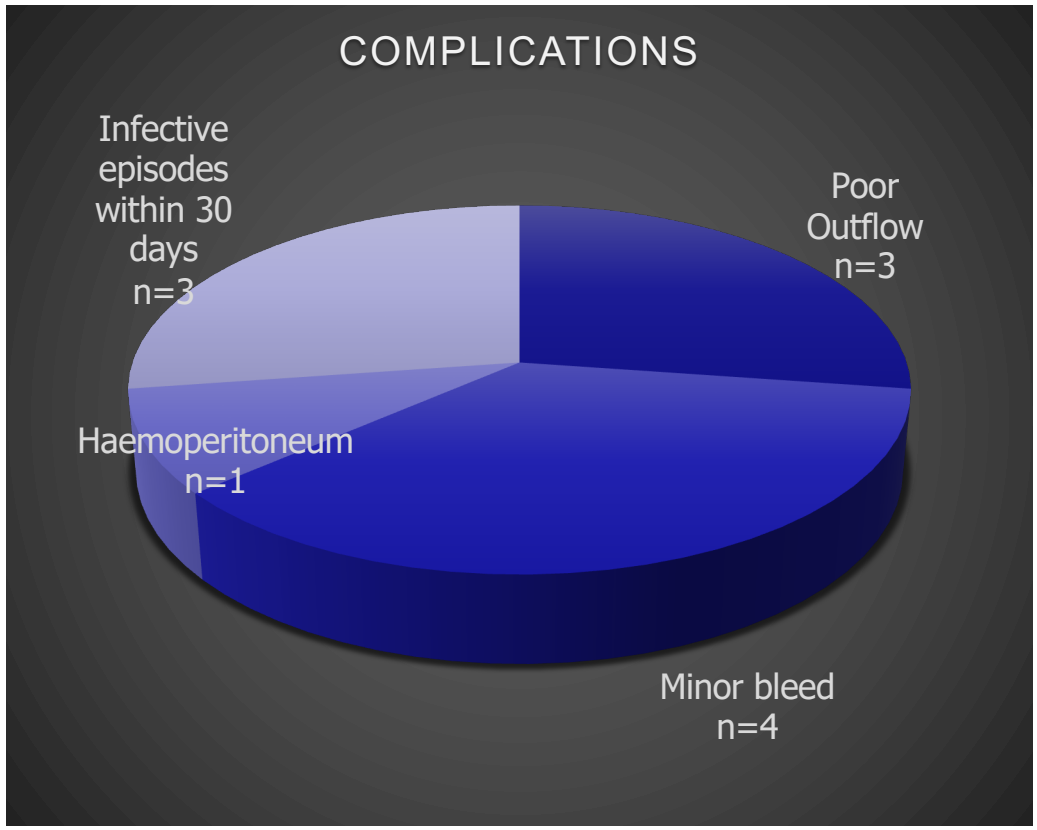
A NEW CARDIO-RENAL AXIS: PERITONEAL DIALYSIS CATHETER PLACEMENT IN THE CARDIAC CATHETER SUITE

JKW WONG[1], TPA CHAN[1], S LO[2], CP JUERGENS[2], MG SURANYI[1], ST SPICER[1], A ARAVINDAN[1], H NANDAKOBAN[1], G RAYMENT[1], I DEGUZMAN[1], G NARAYANAN[1]

[1] Renal Unit, Liverpool Hospital, Sydney, NSW 2170
[2] Department of Cardiology, Liverpool Hospital, Sydney

- 76 patients, Male = 55, median age 64.6 (30-89 years old)
- All catheters were successfully inserted






PATSLIDE
PHILIPS

Audit in PD Catheter Placement

- New PD catheter placement from Jan 2022 to Dec 2024
- Aim to compare in terms of complication, the operating time of Fluoroscopic guidance PD vs. Mini-laparotomy (by surgeon/nephrologist) vs. Laparoscopic PD catheter placement
- **Catheter survival** – requires catheter removal in 180 and 365 days
- **Complications**: infection within 30 days, bleeding or catheter malfunction

Demographic and Indications

	Fluoroscopic PD		Nephrologist Mini-laparotomy		Urologist Mini-laparotomy		Urologist Laparoscopy	
Total Number of cases	76	(Male = 50, Female 26)	21	(Male = 11, female =10)	58	(Male= 37,Female 21)	17	(Male=10, Female=7)
Average age (Male)	63.9	(35.2-84.8 years)	67.7	(27.8-81.8 years)	65.8	(29.17-83.9 years)	65.49	(34.98-83.85 years)
Average age (Female)	62.7	(36.1-88.9 years)	54.1	(39.9-70.8 years)	65.8	(25.1-93.1 years)	63.94	(55.6-73.81 years)
BMI (Male)	24.1	(16.9-31.5)	24.9	(23.4-27.6)	24.7	(20.9-28.1)	29.4	(22.4-38.2)
BMI (Female)	22.6	(14.3-32)	24.4	(19.6-29.3)	24.3	(15.1-41.3)	24.4	(18.8-22)

	Fluoroscopic PD		Nephrologist Mini-laparotomy		Urologist Mini-laparotomy		Urologist Laparoscopy	
	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)
PD Initiation	51	67.11	10	47.62	39	67.24	13	76.47
Convert HD to PD	20	26.32	11	52.38	6	10.34	3	17.65
Re-insertion	5	6.58	0	0	13	22.41	1	5.88

Operating Time

Average operation time		
Modailty	**Time (In minute)**	**Range**
Fluoroscopic PD	51.07	20-130
Nephrologist Mini-laparotomy	73.7	26-120
Urologist Mini-laparotomy	43.18	20-159
Urologist Laparoscopy	72.6	25-181

Catheter Survival

Fluoroscopic PD			
	Total	**No. of functioning catheter**	**Catheter Survival (%)**
Number of catheters >180 days	67	59	88.06
Number of catheters >365 days	51	45	88.24
Nephrologist Mini-laparotomy			
	Total	**No. of functioning catheter**	**Catheter Survival (%)**
Number of catheters >180 days	20	17	85.00
Number of catheters >365 days	20	17	85.00
Urologist Mini-laparotomy			
	Total	**No. of functioning catheter**	**Catheter Survival (%)**
Number of catheters >180 days	50	47	94
Number of catheters >365 days	41	33	80.49
Urologist Laparoscopy			
	Total	**No. of functioning catheter**	**Catheter Survival (%)**
Number of catheters >180 days	16	15	93.75
Number of catheters >365 days	14	13	92.86

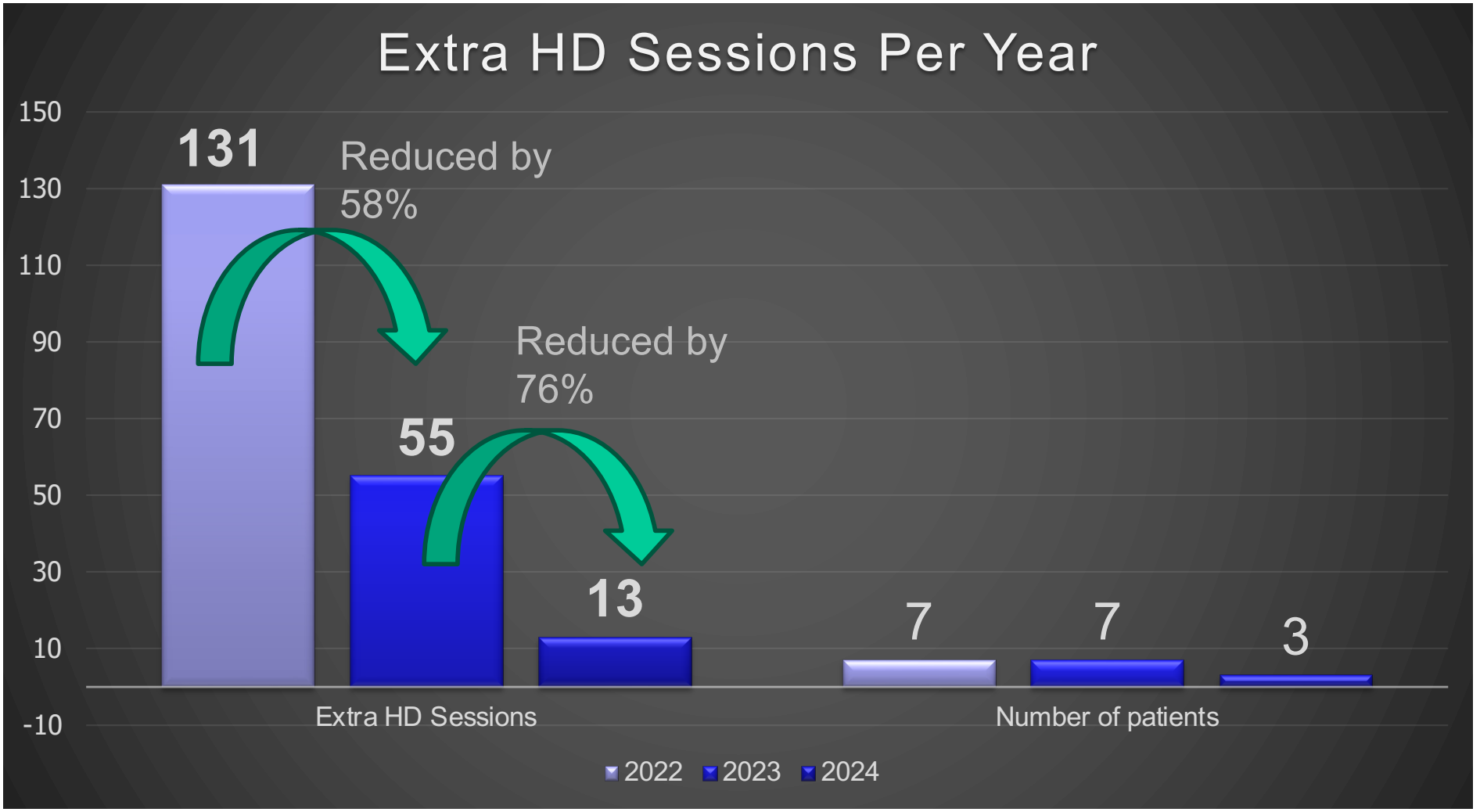
Complications

	Fluoroscopic PD		Nephrologist Mini-laparotomy		Urologist Mini-laparotomy		Urologist Laparoscopy	
	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)	Number of Cases	Percentage (%)
Early Catheter Dysfunction	5	7.04	1	8.33	4	7.14	1	5.88
Exit site bleeding	2	2.82	0	0.00	0	0.00	0	0.00
Exit site leakage	3	4.23	1	8.33	3	4.56	2	11.76
Exit site infection	1	1.41	0	0.00	2	3.57	1	5.88
Main wound bleeding	0	0.00	0	0.00	0	0.00	0	0.00
Main wound infection	0	0.00	0	0.00	1	0.00	0	0.00
Bowel Perforation	0	0.00	0	0.00	0	0.00	0	0.00
Haemoperitoneum	1	1.41	0	0.00	0	0.00	0	0

Major Complications

- 1 case failure for insertion
- 2 cases with implantation into the pre-peritoneal space
- 1 case of delayed haemoperitoneum – blood stain PD fluid at the last cycle of IPD
- 1 case of refractory CAPD peritonitis immediately after PD catheter insertion (Re-insertion after peritonitis) –due to biliary sepsis

Service Improvement



Summary

- Fluoroscopic guidance PD catheter placement can be a safe alternative to conventional procedures.
- It reduces the waiting time for patients to transition from temporary HD to long-term PD.
- It allows better resource allocation for the urology team to handle the more challenging cases.
- It provides a better bonding and continuity of care from the nephrologist to the patients.

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