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Incremental PD

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Conflict of Interest

I have received an honorarium from Baxter Corporation.

I have received grant funding from the NIH.

Learning Objectives

- To define incremental PD
- To identify the advantages to the patients of using incremental PD

Patients and Caregivers Poll

- **Which of the following applies to your PD prescription or to the patient you are caring for?**
- I do **manual** exchanges throughout the day for **<8 liters a day**
- I use a **machine** to do PD and am **"dry" during the day**
- PD is done **<7 days a week**
- none of the above
- <https://manage.eventmobi.com/en/ars/results/question/14514/378444/9a0068f6b1e6e0e2eca2ba10bf752ac2>

Healthcare Providers Poll

- **What % of the patients you see have a PD prescription that fits ANY of the following:**
 - 1) PD is done <7 days a week,
 - 2) patient "dry" during the day,
 - 3) continuous ambulatory PD (CAPD) for <8 liters a day?
- 76-100%
- 0%,
- 0-25%
- 26-50%
- 51-75%
- <https://manage.eventmobi.com/en/ars/results/question/14514/378445/a1cb581aa82e78950482a80f3db1f15a/>

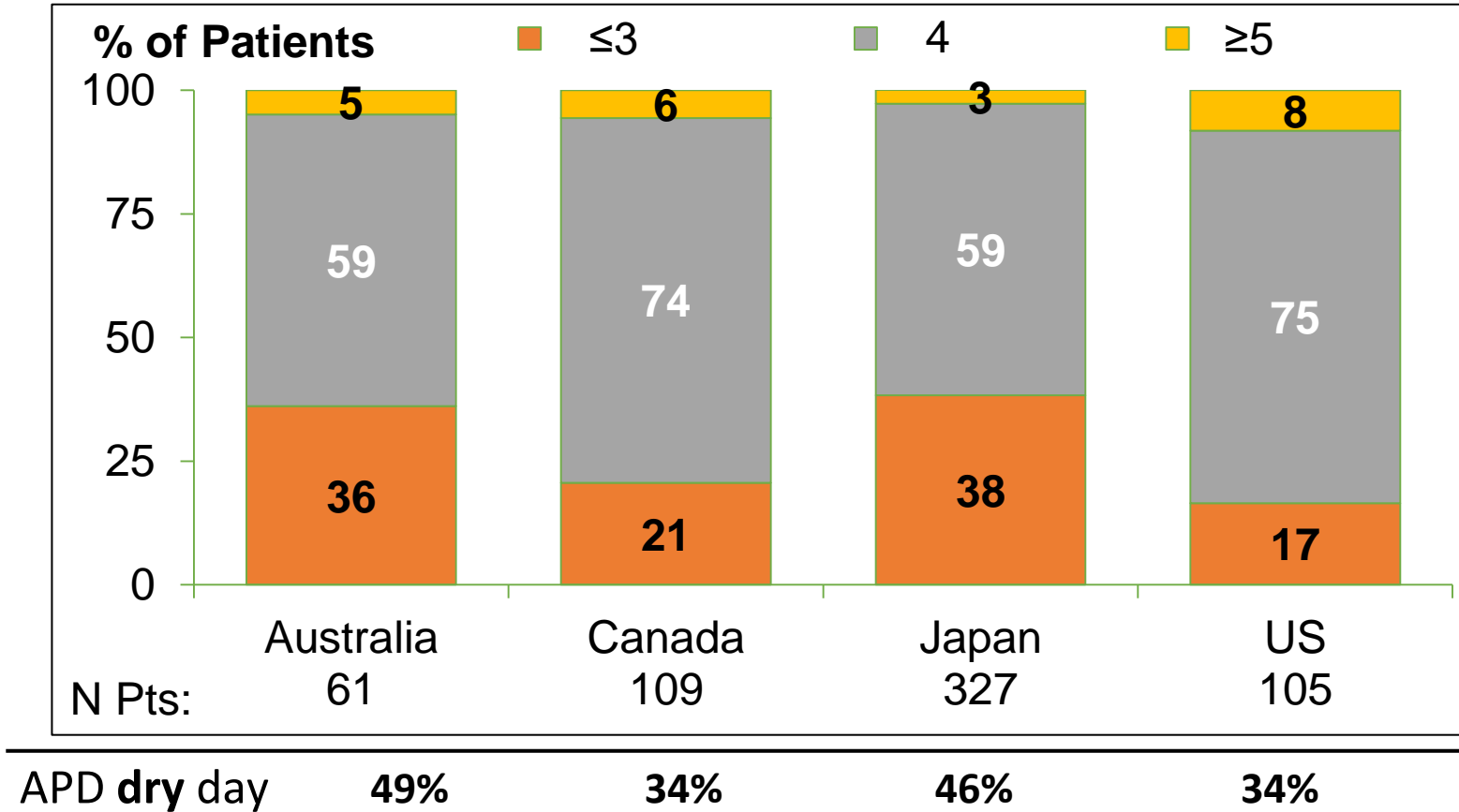


What is incremental PD?

- Prescription that provides adequate PD
 - $Kt/V > 1.7$
 - Patient feels well
- using less than “full dose” of PD
 - Full dose CAPD (manual exchanges) = 4 x 2L exchanges a day
 - Full dose automated PD = nightly cyclers + 1 day dwell
- Requires residual kidney function
- Examples:
 - CAPD (manual exchanges) < 8L a day
 - Cycler PD (machine does exchanges) with no day dwell
 - < 7 days/week of PD

How common is incremental PD?

of exchanges for CAPD (manual exchanges) patients



S Davies, et al. The Prescription in Peritoneal Dialysis: International Comparison from the PDOPPS. 2017 EDTA.

Advantages

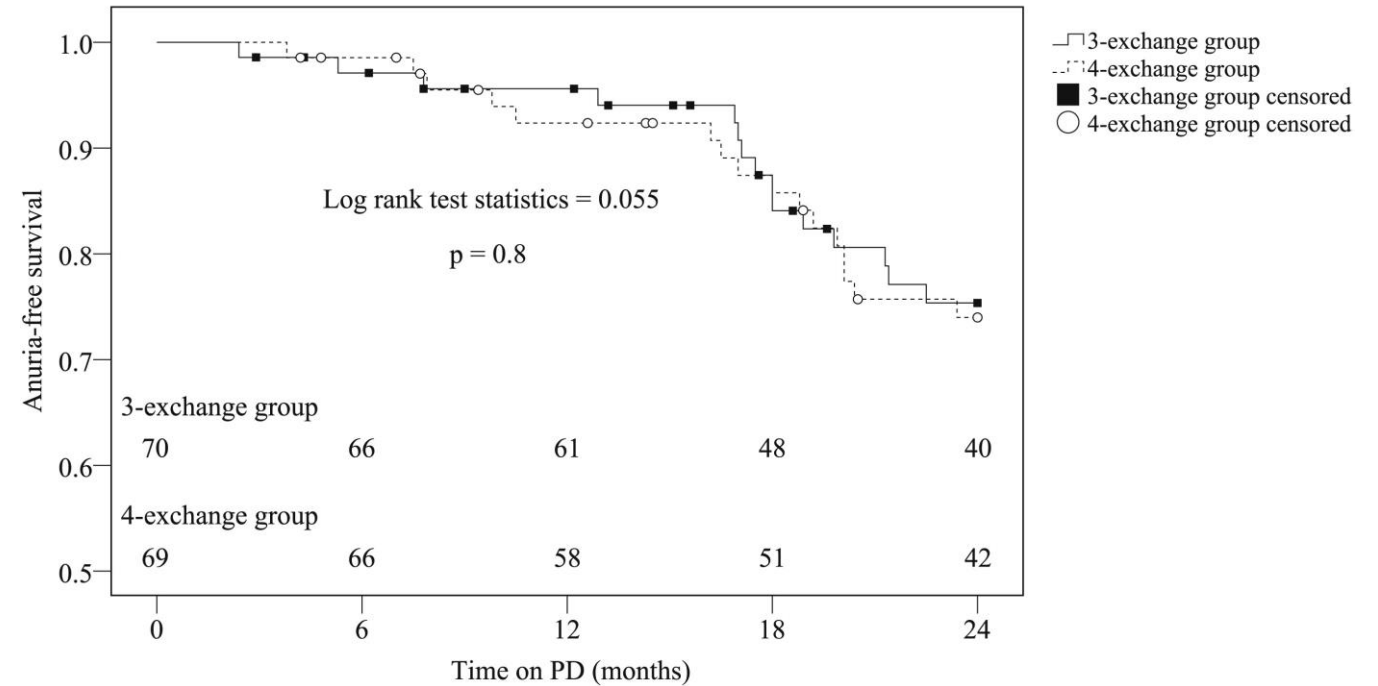
- Less time/burden to perform exchanges
- Lower cost
- Less glucose exposure
- Potentially less peritonitis (infection)

Evidence

- Design: Randomized controlled study
- Participants: 139 patients starting CAPD in China
- Intervention: 24 months of 3 (incremental PD) vs. 4 (full PD) exchanges a day
- Outcomes
 - GFR (kidney function)
 - Urine volume
 - Time to anuria (no more urination)

Evidence

- No difference in
 - decline of kidney function
 - Patient survival
 - Technique survival (staying on PD)



Evidence

- 3 exchange group (incremental PD)
 - Kt/V lower
 - 1.95 vs. 2.19, $p=0.03$
 - Ultrafiltration lower (less fluid taken off through PD)
 - 404 ml/day vs. 742 ml/day, $p=0.004$
 - But ultrafiltration+urine volume not different
 - Less peritonitis (infection), but not statistically significant
 - 13% vs. 26%, $p=0.06$
- No patient-reported outcomes
- Incremental PD did not do any harm, potential benefits

How do you prescribe incremental PD?

- Very flexible
- Automated PD (cycler) at night, dry during the day
 - 3-4 exchanges, 8-10 hours total
 - Good for patients who are active during the day
 - Good for high transporters
 - Easier to increase fill volumes



How do you prescribe incremental PD?

- Continuous ambulatory PD (manual exchanges)
 - 1-3 exchanges/day
 - <6 hour dwells
 - Dry part of the day
 - >6 hour dwells
 - 2 x 12 hr icodextrin
 - 3 x 8 hr exchanges
 - 2 x 6-7 hr dwells
- <7 days a week



Disadvantages

- Regularly monitor residual kidney function
- Patient will eventually need more PD



Myth

- **“If you don’t need full dose PD, you don’t need PD.”**

Myth

- ~~“If you don’t need full dose PD, you don’t need PD.”~~

Incremental PD can be enough

- 35 y.o. male patient with heart failure and chronic kidney disease.
 - Difficult to control his fluid status.
 - Often short of breath with swollen legs.
 - When he had enough diuretics (water pills) to keep him euvolemic (not too wet or dry) → kidney function worsened
 - → felt nauseated from uremia (too many toxins not cleared by the kidney)
 - → high potassium



Incremental PD can be enough

- 2 x 2L exchanges a day, 4 hours each
 - Fluid status stable.
 - Did not feel ill (no longer uremic).
 - Potassium normal.



Patient perspective

- 24 y.o. female uses the cyclor, 3 x2L exchanges. No day dwell.
- “I’ll do more exchanges if I have to. But if my labs are ok, and I feel fine, I’d rather not do the last fill [day dwell]. I feel so bloated when I’m at work. And then I have to figure out how to drain at work. It’s a lot of hassle.”

Thanks!

FAMOUS KIDNEYS



BILLY THE KIDNEY



NICOLE KIDNEY



HELLO KIDNEY



JOHN F. KIDNEY



THE KIDNEY AND I



KIDNEY ROCK

