BC KIDNEY DAYS

Hosted by BC Transplant and the BC Renal Agency

2016

Deprescribing in CKD patients: Is less more?

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Case

Mr. Kid Ney is a 75 y/o patient who has been on dialysis for the last 4 years (PD, then HD).

- PMHx: HTN, DM, CAD, osteoarthritis
- BP pre HD: 135/80; BP post HD: 120/70; HR stable between 70-80
- His functional status has been decreasing in the past 6 months
- Patient complaining that he feels like his stomach is always full with meds

Case

- **Medications:**

Acetaminophen OA, 1.3 g PO BID
EC ASA, 81 mg PO daily
Metoprolol, 50 mg PO BID
Ramipril, 10 mg PO daily
Atorvastatin, 40 mg PO daily
Gliclazide MR, 30 mg PO daily
Linagliptin, 5 mg PO daily
Insulin lantus, 20 units SC at HS

Alfacalcidol, 0.25 mcg PO 3 times/week
Tums Ultra, 2 tabs PO TID
Renavite, 1 tab PO daily
Epoietin α, 3,000 units IV 2 times/week
Ferrlicit, 125 mg IV Q2weeks
Quinine, 300 mg PO Qdialysis
Hydroxyzine, 20 mg PO TID PRN

Case

Labs (Normal values)	6 weeks ago	Today
Hgb (120-155 g/L)	100	104
A1C (4.5-6%)	7.0	6.8
K (3.5-5 mmol/L)	5.0	4.6
Ca (2.1-2.55 mmol/L)	2.25	2.45
PO4 (0.8-1.45 mmol/L)	1.11	1.3
iPTH (< 7 pmol/L)	35	22
Albumin (34-50 g/L)	38	35
BUN (2-8.2 mmol/L)	18	22
Creatinine (40-95 mmol/L)	450	480

Outline

1. Polypharmacy
2. Prescription patterns in BC
3. Deprescribing tools
1. New initiatives

A few questions…

What is the average number of medication prescribed to BC dialysis patients?

A. 8
B. 12
C. 15
D. 18

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A few questions…

What are the risk related to polypharmacy?

A. Increases risk of adverse drug reactions
B. Increases risk of ER visits and hospital admission
C. Increases risk of fall
D. Increases risk of mortality
E. All of these options

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A few questions…

Which of these medications are Potentially Inappropriate Medications (PIMs), according to Beers list in elderly patients?

A. Hydroxyzine
B. Insulin Regular sliding scale
C. Glyburide
D. Zopiclone
E. All of these options

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Background

- Polypharmacy is defined by > 5 regular medications prescribed
  - Every 12 months, 1/3 people taking > 5 meds/d suffers of ADRs, with more than 25% being preventable.
  - 18% of all inpatients death related to ADRs
  - 44% of all discharge prescription contains at least 1 unnecessary medication
- Number of meds taken is one of the most important predictor of harm, especially in elderly patients

Evid Based Med 2013; 18(4): 121-4.

Background

- Drivers for polypharmacy
  - Multiple disease specific clinic guidelines
  - Quality indicators and performances indicators
  - Patient and family's expectations
  - Focus on treating acute disease without reassessing treatment for chronic disease
  - Misinterpreting ADRs for new diagnosis
- Dialysis patients have the highest pill burden of all chronically ill patients

Evid Based Med 2013; 18(4): 121-4.
Clin J Am Soc Neph 2009;4(6):1089-96.

Background

- Dialysis patients are at higher risk of ADRs
  - Impaired drug clearance
  - Polypharmacy
  - Comorbidities
  - PK/ PD change
  - Rarely included in trials → efficacy and safety incertain

Nephrol Dial Transplant 2014; 30: 498-505.

Deprescription

The systematic process of **identifying** and **discontinuing** drugs in instances in which existing or potential harms outweigh existing or potential benefits within the context of **an individual patient's care goals, current level of functioning, life expectancy, values, and preferences.**

- Cumulative risk with multiple drugs and their pharmacokinetic/pharmacodynamic interactions.

Evid Based Med 2013; 18(4): 121-4.

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Deprescription

Potentially Inappropriate Medications (PIMs)

Medication with no clear evidence-based indication, with risk of adverse drug reactions, or not cost-effective.

2012 AGS Beers PIMs list for older adults

- Anticholinergic meds (TCA, 1st gen. antihistamine, antispasmodic)
- Ticlodipine and dypiridamole
- Nitrofurantoin
- α-blockers, Central α-agonists, Anti-arrythmics, digoxin, spironolactone
- Barbiturates, antipsychotics, benzo, hypnotics
- Hormone thx, megestrol, LA sulfonylurea, insulin SS
- Metoclopramide
- NSAIDs, meperidine, muscle relaxants

J Am Geriatr Soc. 2012 Apr; 60(4): 616–631.

Deprescription in elderly

- In Canada, it is estimated that 37% of people > 65 years old and 47% of patients > 85 years old received at least 1 PIM prescription in 2013
- The cost for the PIMs is equivalent to $75 per Canadian older than 65 years old or $419 millions in total outside of other hospital cost
- 47% of women aged > 85 years old had a PIM prescription.
- Benzo and hypnotics were the leading PIMs prescribed.

CMAJ Open 2016; 4: E346-51.

PIMs in HD patients

- Kondo et al. *Nephrol Dial Transpl 2014; 30: 498-505.*
  - Data from J-DOPPS II and III on Japanese hemodialysis patients
    - Included patients > 65 years old and on chronic hemodialysis
  - Identified 47 PIMs based on expert opinions and modified Beers criteria for elderly Japanese populations
  - PIM only considered if still ordered 1 year after enrollment

PIMs in HD patients

Characteristics	J-DOPPS II (2002) ($n = 595$) (%)	J-DOPPS III (2005) ($n = 772$) (%)	Overall ($n = 1367$) (%)
Sex			
Male	57	60	59
Primary cause of ESRD			
DM	32	34	33
Age (years)			
65–69	31	36	34
70–74	34	27	30
75–79	20	21	20
80–84	9	10	10
≥85	5	6	6
Vintage (year)			
<1	15	23	19
1–4	45	34	39
≥5	40	43	42
Number of comorbidities[a]			
0	6	5	5
1–2	18	37	29
3–4	42	30	35
≥5	33	28	30
Number of medications			
<6	33	26	29
6–7	18	26	23
8–9	24	24	24
≥10	25	24	24

Nephrol Dial Transpl 2014; 30: 498-505.

PIMs in HD patients

- 57% of patients had a least 1 PIMs prescribed
  - 31% of patients were on H2 blockers
  - 19% of patients on antiplatelets
  - 16% on ticlodipine
  - 13% on α-blockers
- Diabetic patients with a longer vintage on dialysis, with more comorbidities and higher number of medications are at higher risk of having a PIM prescribed
- Pt receiving HD at facility with multidisciplinary rounds and at a teaching hospital were less frequently prescribed PIMs.

Nephrol Dial Transpl 2014; 30: 498-505.

BC Prescribing patterns data

- Part of a national initiative on deprescribing in dialysis patients

- PROMIS database for BC dialysis patients between June 3rd to October 1st 2015
  - > 18 years old
  - Same dialysis modality for > 120 continuous days
  - PD vs. Hemodialysis

BC Prescribing patterns data

	All dialysis patients (n=3,017)	HD (n=2,243)	PD (n=774)
Mean age (SD)	66.2 (14.8)	67.7 (14.7)	64.2 (14.4)
Male Sex, n (%)	1,824 (60.5)	1,336 (59.6)	488 (63)
Comorbidities, n (%)			
Cardiac	1,741 (57.7)	1,335 (59.5)	406 (52.5)
DM	2,098 (69.5)	1,588 (70.8)	510 (65.9)
Race (%)			
Caucasian	1,730 (57.3)	1,285 (57.3)	445 (57.5)
Asian	1,006 (33.3)	741 (35)	265 (34.3)
Native	125 (4.1)	96 (4.3)	29 (3.7)
Others	156 (5.6)	121 (3.4)	35 (4.5)
Median Dialysis vintage [IQ]	3.3 [1.7-6.1]	3.8 [1.8-7.1]	2.4 [1.3-3.9]

BC Prescribing patterns data

	All dialysis patients (n=3,017)	HD (n=2,243)	PD (n=774)
Mean number of meds (SD)	17.7 (5.7)	18.1 (5.9)	16.7 (5.0)
Mean number of reg. meds (SD)	12.4 (4.2)	12.3 (4.2)	12.5 (4.2)
Mean number of meds (SD)			
Cardiology	3.5 (2.0)	3.5 (2.0)	3.6 (2.0)
Diabetes	0.6 (0.8)	0.6 (0.8)	0.7 (0.9)
Renal	4.7 (1.4)	5.0 (1.3)	3.9 (1.2)
Symptoms	5.8 (3.0)	6.0 (3.2)	5.2 (2.2)
Others	3.1 (2.2)	3.0 (2.3)	3.5 (2.1)
Mean number PIMs (SD)	5.0 (2.8)	5.4 (2.8)	4.0 (2.4)
Number of pts on PIMs (%)	2,936 (97.3)	2,200 (98.1)	736 (95.1)

BC Prescribing patterns data

	All dialysis patients (n=3,017)	HD (n=2,243)	PD (n=774)
Mean number of meds by age group (SD)			
18 to 39 years old	15.4 (6.1)	16.1 (6.4)	13.4 (4.8)
40 to 64 years old	17.7 (5.8)	18.1 (6.1)	16.5 (4.8)
65 to 79 years old	18.4 (5.6)	18.7 (5.8)	17.3 (5.0)
≥ 80 years old	17.2 (5.4)	17.2 (5.4)	17.3 (5.1)
Mean number of PIMs by age group (SD)			
18 to 39 years old	3.6 (2.9)	4.2 (3.0)	2.1 (2.0)
40 to 64 years old	4.9 (2.9)	5.4 (3.0)	3.9 (2.3)
65 to 79 years old	5.3 (2.6)	5.7 (2.7)	4.4 (2.2)
≥ 80 years old	5.1 (2.7)	5.2 (2.7)	4.3 (2.7)

BC Prescribing patterns data

	All dialysis patients (n=3,017)	HD (n=2,243)	PD (n=774)
Allopurinol	537 (17.8%)	359 (16.0%)	178 (23%)
1st gen. antihistamines	1,117 (37%)	1,005 (44.8%)	112 (14.5%)
ASA	1,392 (46.1%)	1,049 (46.8%)	343 (44.3%)
Gabapentin	554 (18.4%)	458 (20.4%)	96 (12.4%)
Hypnotics	665 (22.0%)	523 (23.3%)	142 (18.4%)
Loop diuretic	896 (29.7%)	526 (23.5%)	*370 (47.8%)*
Narcotics	832 (27.6%)	708 (31.6%)	124 (16.0%)
PPI	1,210 (40.1%)	944 (42.1%)	266 (34.4%)
Statin	1,427 (47.3%)	996 (44.4%)	431 (55.7%)

Where do we go from here?

- General tools
  - Guide an overall reassessment of all medications a patient is taking
  - Tools only validated in the elderly population

- Specific tools
  - Target re-assessment of specific medication within a population
  - Specific medication algorithms geared toward deprescribing
  - START/STOP tool for elderly patients

Deprescribing in HD pts

- McIntire et al. *In press*
  - Prospective observational study at UHN hemodialysis unit
  - 3 phases
    - Development of deprescribing tools
      - Quinine
      - Loop diuretics
      - Alpha-blockers
      - Proton pump inhibitors
      - Statins
    - Validation of deprescribing tools
    - Implementation and evaluation of deprescribing tools

Deprescribing in HD

Table 3. Number of target medications throughout the deprescribing study

Target Medication	Number of target medications				
	Total in unit, prior to study (171 patients)	Flagged by algorithm (71 patients)	Enrolled in the trial (35 patients)	Successfully deprescribed (27 patients)	Successfully deprescribed 6 months after trial (19 patients)
Quinine	5	5	2	2	0
Diuretics	31	31	10	9	8
Alpha-1 blockers	14	3	3	3	3
Statins	95	1	1	1	1
PPI	86	40	24	16	12
Total	231	80	40	31	24

- Pts didn't report any concerns

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Deprescribing in HD pts

- Qualitative study to explore perception of HD pts on polypharmacy and deprescribing and identify patient-specific barrier
  - 12 patients interviewed
  - Factors related to polypharmacy
    - Patients likely unwilling initially to stop or change meds on first approach. However, if given clear explanation of why this might be beneficial to them, then are willing to reconsider
    - Challenges associated with dialysis and need for certain medications.
  - Factors enabling med optimazation
    - Awareness of the risk of polypharmacy
    - Confidence in healthcare providers

Future projects

- Canadian initiative to evaluate polypharmacy and deprescribing in dialysis patient
    - Part of the Can-SOLVE CKD
- 3 phases projects
    - Evaluate prescription patterns in dialysis patients and associated cost
    - Developing evidence-based deprescribing algorithms in dialysis patients
    - Modified Delphi Approach to reach agreement on the content of the deprescribing algorithms and the how to use of these algorithms in practice

Conclusion

- Deprescribing is a new process
  - Improve safety in different populations
  - Opportunity to reassess therapy and have a discussion about therapeutic goals
  - Time consuming, but reduce ADRs, waste and may improve compliance to essential medications

- New Canadian initiative to produce evidence-based deprescribing algorithm to the dialysis population…

Stay tuned!

Acknowledgement

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Just to go back to the case…

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