UBC Pharmacists Clinic

Our Practice

By pharmacists for pharmacists.

ISSUE 3: JULY 2017

Feature Article

Digging deeper for patient-centered care.

ROSANNE KHURANA, BSC, BSC(PHARM), ACPR, PHARMD

Pharmacists are responsible for identifying and assessing drug therapy problems (DTPs) and taking action to prevent or resolve them.[1] This is sometimes much easier said than done as patients may not be forthcoming with DTPs or may be unaware they are experiencing or at risk for DTPs. Where do we start with a complex patient who has a multitude of DTPs? How do we find DTPs that may not be immediately obvious? How do we make the most of our time with patients? At the UBC Pharmacists Clinic, we use a systematic approach that includes gathering relevant information, asking powerful questions, and prioritizing issues.

STEP 1 – FIND OUT WHAT THE PATIENT WANTS

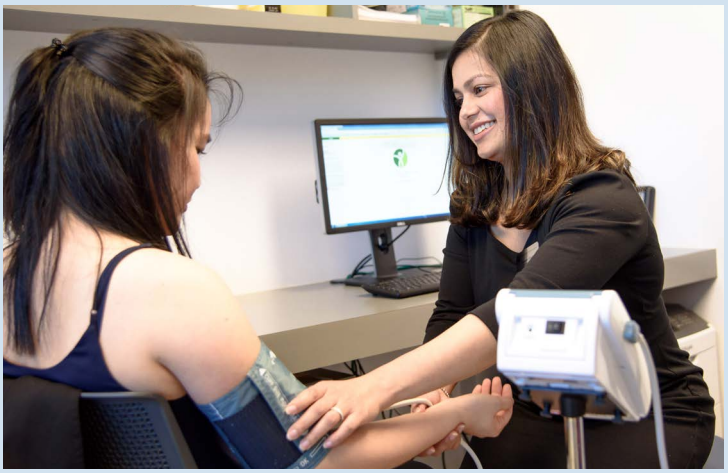
- *What do you want to focus our time on today?*
- *What are you hoping to get out of our time together?*
- *Is your blood pressure/blood sugar/breathing/other symptom where you want it to be?*
- *Are you getting the results you expected from your treatment?*

Note: every drug needs a purpose, goal and beneficial results. If the patient doesn't have a purpose, goal or is not achieving the goal, we have a DTP!

STEP 2 – GATHER INFORMATION ABOUT THE ISSUE(S)

- *What are your symptoms/concerns?*
- *Has your health/have your symptoms changed recently?*
- *What has been done for you so far (treatments tried, other healthcare professionals seen)?*

Note: mixed with the information will be evidence of DTPs. We track all the DTPs in a side list.



STEP 3 – GATHER ADDITIONAL INFORMATION

- *What other health conditions do you have?*
- *What other medications do you take now or have tried before?*
- *Have you had any issues with medications (allergies, reactions)?*

Note: more DTPs will emerge here. We add these to the DTP list.

STEP 4 – SORT AND PRIORITIZE DTPS WITH THE PATIENT, THEN WORK ON THE FIRST ONE OR TWO

- *What matters most to you right now?*
- *Which of these issues do you think is most realistic to tackle first?*
- *Which of these issues is having the greatest impact on your quality of life?*

CONTINUED ON NEXT PAGE

THE UNIVERSITY OF BRITISH COLUMBIA

Pharmacists Clinic, Faculty of Pharmaceutical Sciences, The University of British Columbia
2nd Floor, 2405 Wesbrook Mall, Vancouver, BC Canada V6T 1Z3
Phone 604 827 2584 ● Fax 604 827 2579 ● pharmacists.clinic@ubc.ca ● pharmsci.ubc.ca/pharmacists-clinic

Note: priorities based on medical need and our assessment may not align with patient priorities; this is where delicate negotiation comes in. Typically we need to address at least one concern that is of priority to the patient to build trust and increase their willingness to work towards other priority areas we have identified.

STEP 5 – CREATE A PLAN, INCLUDING WHO WILL DO WHAT TO RESOLVE THE PRIORITY DTP

- *What is a realistic goal to achieve in the next x weeks?*
- *What can you do to move toward this goal?*
- *What can I do to help you move forward?*

Note: we document the goals and share this documentation with the patient and care team.

STEP 6 – SCHEDULE AN INTERIM CHECK-IN

- *When should we check in on progress?*
- *How will we check in? By phone, in person at your next visit, by secure email, etc?*
- *What will we watch for to know that progress is occurring or that we need to change the plan?*

Note: patients stick to their plans better when they know we are checking their progress, so we use check-in times to cheer them on and problem-solve when the plan needs to be modified.

STEP 7 – BOOK FOLLOW-UP APPOINTMENTS

Note: we plan follow-up appointments with all our patients to either check on progress or work on other DTPs in the priority DTP list. This on-going sequence of appointments is where the relationship, rapport and trust grows. This also enables us to eventually have enough time to meet a patient's needs.

STEP 8 - COMMUNICATE WITH THE PATIENT'S CIRCLE OF CARE

- *In addition to your usual doctor/nurse practitioner, who else should I share this plan with so they are aware and can help?*

Note: we make a record of the patient's care team so we know who they are and how to reach them.

We continually use our systematic approach and develop new and creative ways to ask patients powerful questions. Patients can usually tell us what they need and want when we take the time to listen and involve them in the decision-making process.

References

1. BC Health Professions Act – Pharmacists Regulation. http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/417_2008

Case Study

"Flozins" for treatment of type 2 diabetes. Yellow gold or yellow snow?

LUCAS THORNE-HUMPHREY, BSCPHARM, ACPR, PHARMD STUDENT
JILLIAN REARDON, BSC(PHARM), ACPR, PHARMD

A 66-year-old male self-refers to clinic for questions about prevention of urinary tract infections (UTIs). Current medical conditions and medications include type 2 diabetes (T2DM) x 6 years (empagliflozin 25mg PO daily x 1 year, metformin 1000mg PO BID x 6 years; recent hemoglobin A1C 6.5%) and hypertension (ramipril 5 mg PO daily; BP 129/76mmHg on exam); eGFR 71mL/min/1.73m^2. Upon further questioning, the patient reports at least 3 symptomatic UTIs over the past year. He denies prior history of UTIs. He has also developed insomnia secondary to nocturia. After educating the patient of the link between empagliflozin and UTIs as well as potential for nocturia due to diuretic effect, a discussion of potential benefits and risks of continuing empagliflozin ensued.

Empagliflozin, canagliflozin and dapagliflozin are all sodium glucose co-transporter 2 (SGLT2) inhibitors marketed in Canada for treatment of T2DM (Table 1). These medications are not currently covered by the BC provincial PharmaCare plan and can cost patients upwards of $1000 annually. Two landmark trials have demonstrated benefit for reduction in cardiovascular (CV) events with empagliflozin and canagliflozin.[1,2] The EMPA-REG Outcome trial randomized adults with T2DM and established CV disease (CVD) to empagliflozin or placebo and found a reduction in the composite primary outcome of CV death/non-fatal MI/non-fatal stroke with empagliflozin: (10.5 vs. 12.1%; HR 0.86; 95%CI 0.74-0.99, NNT 63 over 3.1 years).[1] Similarly, the recently published CANVAS trial randomized adults with T2DM and established or at high risk for CVD to canagliflozin or placebo and found a benefit with canagliflozin for the same primary outcome: (2.7 vs. 3.2%; HR 0.86; 95%CI 0.75-0.97, NNT 200 over 3.6 years).[2] Prospective CV outcome trials with dapagliflozin have not yet been published. As our patient does not have established CVD and has well controlled diabetes and hypertension, he would not have been eligible for inclusion in either the EMPA-REG or CANVAS trials thus limiting the generalizability of cardiovascular outcome benefits and weakening the argument to continue empagliflozin.

CONTINUED ON NEXT PAGE

Pharmacists Clinic, Faculty of Pharmaceutical Sciences, The University of British Columbia
2nd Floor, 2405 Wesbrook Mall, Vancouver, BC Canada V6T 1Z3
Phone 604 827 2584 ● Fax 604 827 2579 ● pharmacists.clinic@ubc.ca ● pharmsci.ubc.ca/pharmacists-clinic

Table 1. Currently Marketed SGLT2 Inhibitors in Canada [5,6]

	Typical dose range	Renal Dosing	Comments	
Empagliflozin (Jardiance ®)	10-25mg/day	Contraindicated if eGFR< 45 mL/min/1.73m^2	-CV benefit outcome data in established CVD -Do not initiate if eGFR < 60	Low risk of hypoglycemia Associated with weight loss ~2 to 3 kg Systolic blood pressure reduction 3 to 5 mmHg
Canagliflozin (Invokana ®)	100-300 mg/day	100 mg/day if eGFR < 60 Contraindicated if eGFR< 45 mL/min/1.73m^2	-CV benefit outcome data in established CVD and high risk patients -Increased rate of amputations vs. placebo	
Dapagliflozin (Forxiga ®)	5-10mg/day	Contraindicated if eGFR< 60 mL/min/1.73m^2	-No CV outcome data -Signal for increased rates of bladder cancer, clinical significance unknown	Not recommended in severe hepatic impairment

From a safety perspective, SGLT2 inhibitors are thought to increase risk of genital infections and UTIs through inhibition of renal glucose reabsorption leading to increased glucosuria. Two recent systematic reviews with meta-analyses examining the association between SGLT2 inhibitors and UTIs and genital infections concluded dapagliflozin, but not empagliflozin or canagliflozin, was associated with increased risk of UTIs. All agents were associated with increased risk of genital infections. Dapagliflozin was the only agent showing a dose-response relationship for both UTIs and genital infections. Of note, the majority of included studies were observational in nature.[3,4] Looking at the individual, landmark RCTs, EMPA-REG demonstrated no statistically significant increase in UTIs with empagliflozin versus placebo and a statistically significant increase in genital infections; NNH 13 (women); 28 (men) over 3.1 years. Although not statistically significant, urosepsis occurred more frequently in patients receiving empagliflozin compared to placebo (0.4 vs. 0.1%).[1] Similarly, the CANVAS trial found no statistically significant increase in UTIs with canagliflozin versus placebo and a statistically significant increase in genital infections; NNH 19 (women); 41 (men) over 3.6 years.[2] It should be noted that the studies published to date were not powered to detect a difference in urosepsis and UTI rates between SGLT2 inhibitors and placebo so this relationship cannot be ruled out.

Although the data suggests a relationship between genital infections and SGLT2 use, the link between empagliflozin and UTIs is not supported by currently available data. Regardless, our patient is currently experiencing new UTIs coinciding with empagliflozin initiation and thus a discontinuation trial is warranted. He will follow up with his family doctor and repeat hemoglobin A1C testing in 3 months while monitoring for UTI recurrence and resolution of nocturia/insomnia.

References

1. Zinman B, Wanner C, Lachin J et al. Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes. N Engl J Med. 2015 Nov 26;373(22):2117-28.
2. Neal B, Perkovic V, Mahaffey KW et al. Canagliflozin and Cardiovascular and Renal Events in Type 2 Diabetes. N Engl J Med. 2017 Jun 12. doi: 10.1056/NEJ-Moa1611925. [Epub ahead of print].
3. Li D, Wang T, Shen S et al. Urinary tract and genital infections in patients with type 2 diabetes treated with sodium-glucose co-transporter 2 inhibitors: A meta-analysis of randomized controlled trials. Diabetes Obes Metab. 2017 Mar;19(3):348-355. doi: 10.1111/dom.12825. Epub 2016 Dec 19.
4. Liu J, Li L, Li S et al. Effects of SGLT2 inhibitors on UTIs and genital infections in type 2 diabetes mellitus: a systematic review and meta-analysis. Sci Rep. 2017; 7: 2824. Published online 2017 Jun 6. doi: 10.1038/s41598-017-02733-w.
5. Canadian Pharmacists Association. Diabetes Mellitus RxTx. Arnason T and Mansell K. Revised October 2016, accessed online from on https://www.e-therapeutics.ca/ on May 25, 2017.
6. e-CPS [Internet]. Ottawa (ON): Canadian Pharmacists Association; c2016.

Note: each case study has been peer reviewed and qualifies as a non-accredited learning activity (CE-Plus) within the annual professional development requirement for licensure by the College of Pharmacists of BC.

Your Responsibility

Health care professionals are required to assess each case based on the patient's unique circumstances in consultation with the patient and their care team. The recommendations in this case are based on the views of our clinicians after careful consideration of the best available evidence and needs of the patient. If you would like to discuss one of your patients with us please contact the Clinic team.

THE UNIVERSITY OF BRITISH COLUMBIA

Pharmacists Clinic, Faculty of Pharmaceutical Sciences, The University of British Columbia
2nd Floor, 2405 Wesbrook Mall, Vancouver, BC Canada V6T 1Z3
Phone 604 827 2584 ● Fax 604 827 2579 ● pharmacists.clinic@ubc.ca ● pharmsci.ubc.ca/pharmacists-clinic