Assessment of discontinuation rates of empagliflozin due to adverse drug reactions in adults ≥ 75 years old

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Background

- Empagliflozin is a sodium glucose co-transporter inhibitor (SGLT2i) initially introduced as an antihyperglycemic agent but has now also shown benefit in chronic kidney disease or heart failure. [1-7]
- Significant adverse drug reactions (ADRs) include euglycemic diabetic ketoacidosis (eDKA), urinary tract infection (UTI), and fungal genitourinary infections (GUI). [8]
- Risk factors (e.g., urinary incontinence) for ADRs of empagliflozin have not been extensively studied in older adults ≥75 years old. [8]
- In previous trials, prevalence of UTIs was more common in older adults regardless of empagliflozin-use, however, fungal GUIs were more common in patients using empagliflozin regardless of age. [9]
- In prior trials evaluating SGLT2i use, the number of patients ≥75 years old has consistently been lower than those 65-74 years old. [2-6, 9]
- Empagliflozin is the SGLT2i on the VA national formulary.

Objectives

Primary Objective:

1) To describe discontinuation rates of empagliflozin due to UTIs, fungal GUIs, or DKA/eDKA in adults ≥ 75 years old

Secondary Objectives:

1) To identify the number of times UTIs, fungal GUIs, or DKA/eDKA occurred while on empagliflozin
2) To identify the number of times UTIs, fungal GUIs, or DKA/eDKA lead to discontinuation of empagliflozin
3) To evaluate factors associated with UTIs, fungal GUIs, and DKA/eDKA

Methods

- Retrospective cohort study
- Study period: January 1, 2020 – March 31, 2022
- Protocol determined to be "exempt" by the University of Maryland Institutional Review Board and the VA Research and Development Committee
- Data collected using VA Computerized Patient Record System
- International Classification of Disease-10 codes were utilized

Methods

Table 1: Inclusion & exclusion criteria

Inclusion Criteria	Exclusion Criteria
- 75-99 years old - At least one active outpatient empagliflozin prescription for a minimum of 30-day supply during the study period	- Non-VA empagliflozin prescriptions

Results

Table 2: Baseline characteristics

Sample pooled, n	262
Sample evaluated, n	100
Male, n (%)	99 (99)
Age, mean (range)	80.2 (76-95) years

Figure 1: Primary objective: empagliflozin discontinued following ADR (n= 100)

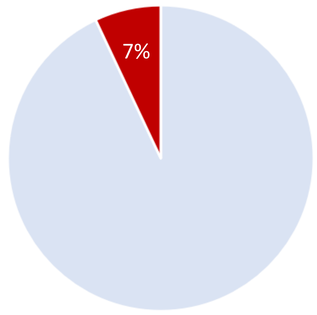
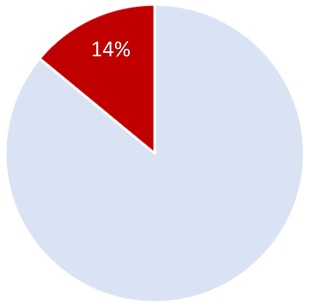


Figure 2: Secondary objective 1: percentage of patients with ADR (n= 100)



Met endpoint
Did not meet endpoint

Results

Table 3: Secondary objective 2

Type of ADR	ADR occurred, (n = 100)	Discontinuation occurred following ADR, (n= 100)
UTI	11	5
Fungal GUI	4	2
DKA/eDKA	0	0
Total	15*	7

*One patient had both UTI & fungal GUI

Table 4: Secondary objective 3

Characteristic	Total Population (N= 100)	Population with ADR (N= 14)
Comorbidities		
Urinary incontinence	24%	35.7%
Type 2 diabetes	90%	100%
Congestive heart failure	29%	35.7%
Alcohol use disorder	3%	7.1%
Benign prostate hyperplasia	40%	42.9%
Type 1 diabetes	1%	0%
Use of other medications or products		
Glucocorticoids	17%	35.7%
Antispasmodics	9%	21.4%
Alpha 1 blockers	46%	57%
5-alpha reductase inhibitors	20%	28.6%
Insulin	34%	35.7%
Alcohol deterrents	0%	0%
Catheters/collection device	1%	0%
Other immunosuppressants	5%	0%
Incontinence products	5%	0%
Previous infection		
Previous UTI	10%	21.4%
Previous fungal GUI	4%	7.1%
Other		
Female	1%	0%
Empagliflozin dose 25 mg	42%	28.6%

Conclusion

- Based on preliminary data, it appears certain comorbidities and medications may be associated with rates of infection
- Small sample size makes it difficult to make concrete conclusion
- Larger review needed to assess ADR prevalence in SGLT2i versus placebo
- Future direction: preliminary data serves as a pilot trial for larger review

Reference:

Authors of this presentation have the following to disclose concerning possible financial or personal relationship with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

- *Christian Macaspac: Nothing to disclose / Frank Cintineo: Nothing to disclose / Karen Korch-Black: Nothing to disclose / Kristin Watson: Nothing to disclose*

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