Comparison of the Risk of Acute Kidney Injury Between Patients With Type 2 Diabetes Exposed to Dapagliflozin and Those Exposed to Other Antidiabetic Treatments

First published: 15/01/2016

Last updated: 11/11/2026

Study Finalised

Administrative details

EU PAS number

EUPAS11684

Study ID

50490

DARWIN EU® study

No

Study countries

United Kingdom

United States

Study description

The overall goal of this research study is to estimate the risk of hospitalization for acute kidney injury in patients who are prescribed dapagliflozin compared to patients prescribed other specific oral antidiabetic drugs. Dapagliflozin and other antidiabetic drugs are used to treat type 2 diabetes mellitus. Because of the mechanism of action for dapagliflozin and results from small safety monitoring studies, there is interest in further evaluating the safety of dapagliflozin in large populations. The study will be implemented in three administrative health care data sources in two countries: in the United Kingdom, the Clinical Practice Research Datalink (CPRD), and in the United States, the Centers for Medicare and Medicaid Services (CMS) Medicare databases and the HealthCore Integrated Research Database (HIRDSM). Individuals in the databases will be included in the study if they meet the following age criteria, 18 years and older (CPRD and HIRD), or 65 years or older (Medicare), and if they did not have type 1 diabetes, are new users of one of the study drugs and meet the criteria of at least 180 days of electronic data before their first prescription of the study drug. The study period starts July 1, 2013 in CPRD and January 9, 2014 in the United States data sources, and will end at the latest available data at each database at the time of analysis.

Study status

Finalised

Research institutions and networks

Institutions

RTI Health Solutions (RTI-HS)

France

Spain

Sweden

United Kingdom

United Kingdom (Northern Ireland)

United States

First published: 21/04/2010

Last updated: 11/08/2026

Institution **Not-for-profit** **ENCePP partner**

HealthCore

First published: 01/02/2024

Last updated: 01/02/2024

Institution

RTI Health Solutions (RTI-HS)

France

Spain

Sweden

United Kingdom

United Kingdom (Northern Ireland)

United States

First published: 21/04/2010

Last updated: 11/08/2026

Institution | Not-for-profit | ENCePP partner

HealthCore United States

Contact details

Study institution contact

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Study contact

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Primary lead investigator

Catherine Johannes

Primary lead investigator

Study timelines

Date when funding contract was signed

Planned: 12/02/2015

Actual: 12/02/2015

Study start date

Planned: 29/01/2016

Actual: 02/02/2016

Date of interim report, if expected
Planned: 30/12/2016

Actual: 22/11/2016

Date of final study report
Planned: 30/11/2020

Actual: 23/12/2020

Sources of funding

- Pharmaceutical company and other private sector

More details on funding

AztraZeneca

Study protocol

DAPA AKI Protocol_ final 23June2014_redacted.pdf (1.15 MB)

DAPA AKI_Protocol_Revisions 28Feb2017_redacted.pdf (1.24 MB)

Regulatory

Was the study required by a regulatory body?

Yes

Is the study required by a Risk Management Plan (RMP)?

EU RMP category 3 (required)

Other study registration identification numbers and links

D1690R00004

Methodological aspects

Study type

Study type list

Study topic:

Disease /health condition

Human medicinal product

Study type:

Non-interventional study

Scope of the study:

Safety study (incl. comparative)

Data collection methods:

Secondary use of data

Study design:

/

Main study objective:

To compare, by insulin use at the index date, the incidence of hospitalization for acute kidney injury (AKI) among patients with type 2 diabetes mellitus who are new users of dapagliflozin with those who are new users of antidiabetic drugs (ADs) in classes other than sodium-glucose cotransporter 2 (SGLT2) inhibitors, insulin monotherapy, metformin monotherapy, or sulfonylurea monotherapy.

Study Design

Non-interventional study design

Cohort

Study drug and medical condition

Medicinal product name

FORXIGA

XIGDUO

Medicinal product name, other

Farxiga, Xigduo XR

Study drug International non-proprietary name (INN) or common name

DAPAGLIFLOZIN

Anatomical Therapeutic Chemical (ATC) code

(A10BD15) metformin and dapagliflozin

metformin and dapagliflozin

Medical condition to be studied

Acute kidney injury

Population studied

Short description of the study population

The study focused on risk of acute kidney injury in patients with type 2 diabetes aged 18 years or more exposed to dapagliflozin and other antidiabetic (ADs) treatments identified from CPRD, HIRD and Medicare database in the US.
Inclusion criteria:
(1) receive newly prescribed dapagliflozin (with or without other ADs) or receive a newly prescribed AD (with or without other ADs) in a class other than SGLT2 inhibitors, insulin monotherapy, metformin monotherapy, or sulfonylurea monotherapy;
(2) do not have any diagnostic code indicating type 1 diabetes;
(3) are aged 18 years or older at the index date for CPRD patients, 18-64 years for HIRDSM patients, or 65 years or older for Medicare patients; and
(4) have been enrolled in the data source for at least 180 days before the first prescription or dispensing dapagliflozin or eligible index comparator AD.

Exclusion criteria:
Patients with a previous diagnosis of chronic kidney failure will be excluded.

Age groups

- Adults (18 to < 46 years)
- Adults (46 to < 65 years)
- Adults (65 to < 75 years)
- Adults (75 to < 85 years)
- Adults (85 years and over)

Special population of interest

Other

Special population of interest, other

Patients with type 2 diabetes mellitus

Estimated number of subjects

65.703

Study design details

Comparators

Comparator antidiabetic drugs

Outcomes

The primary outcome in this study will be hospital admission for AKI.

Data analysis plan

Descriptive statistics will be calculated to compare baseline characteristics at cohort entry between dapagliflozin users versus comparator antidiabetic users. Propensity scores will be estimated by using logistic regression, with measured potential predictors of acute kidney injury as independent variables in the regression model and actual exposure group (dapagliflozin or comparator) as the outcome. Incidence rates of acute kidney injury will be estimated during exposure time at risk for dapagliflozin initiators and comparators. Unadjusted incidence rate ratios (IRRs) of the outcome of interest with 95% confidence intervals in dapagliflozin users versus other AD users will be calculated, and adjusted using propensity score–stratified analysis. Analyses will be conducted in each data source separately, and a pooled estimate will be calculated if deemed appropriate.

Documents

Study results

0304030_Dapa AKI Final Report_Final_9Nov2020_Abstract_Redacted.pdf
(250.63 KB)

Study publications

Johannes CB, Beachler DC, Layton JB, Danysh HE, Ziemiecki R, Arana A, Dinh J, L...

Johannes C, Layton JB, Beachler DC, Ziemiecki RM, Li L, Danysh HE, Dinh J, Hunt...

Johannes C, Beachler D, Ziemiecki R, Yin R, McGrath L, Jemison J, Lanes S, Gils...

Layton JB, Zhou CK, Danysh HE, Beachler DC, Ziemiecki R, Dinh J, Yin R, Calinga...

Data management

ENCePP Seal

The use of the ENCePP Seal has been discontinued since February 2025. The ENCePP Seal fields are retained in the display mode for transparency but are no longer maintained.

Data sources

Data source(s)

Clinical Practice Research Datalink

Data sources (types)

Administrative healthcare records (e.g., claims)

Drug dispensing/prescription data

Electronic healthcare records (EHR)

Use of a Common Data Model (CDM)

CDM mapping

No

Data quality specifications

Check conformance

Unknown

Check completeness

Unknown

Check stability

Unknown

Check logical consistency

Unknown

Data characterisation

Data characterisation conducted

No