The Effects of ARBs, ACEis, and Statins on Clinical Outcomes of COVID-19 Infection Among Nursing Home Residents

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Study Finalised

Administrative details

EU PAS number

EUPAS48481

Study ID

48491

DARWIN EU® study

No

Study countries

Belgium

Study description

Objectives: Angiotensin-converting enzyme inhibitors (ACEi), angiotensin II receptor blockers (ARBs), and HMG-CoA reductase inhibitors (“statins”) have been hypothesized to affect COVID-19 severity. However, up to now, no studies investigating this association have been conducted in the most vulnerable and affected population groups (ie, older adults residing in nursing homes). The objective of this study was to explore the association of ACEi/ARB and/or statins with clinical manifestations in COVID-19einfected older adults residing in nursing homes. Design: We undertook a retrospective multicenter cohort study to analyze the association between ACEi/ ARB and/or statin use with clinical outcome of COVID-19. The outcomes were (1) serious COVID-19 defined as long-stay hospital admission or death within 14 days of disease onset, and (2) asymptomatic (ie, no disease symptoms in the whole study period while still being diagnosed by polymerase chain reaction). Setting and participants: A total of 154 COVID-19epositive subjects were identified, residing in 1 of 2 Belgian nursing homes that experienced similar COVID-19 outbreaks. Measures: Logistic regression models were applied with age, sex, functional status, diabetes, and hypertension as covariates. Results: We found a statistically significant association between statin intake and the absence of symptoms during COVID-19 (odds ratio OR 2.91, confidence interval CI 1.27e6.71), which remained statistically significant after adjusting for covariates (OR 2.65, CI 1.13e6.68). Although the effects of statin intake on serious clinical outcome were in the same beneficial direction, these were not statistically significant (OR 0.75, CI 0.24e1.87). There was also no statistically significant association between ACEi/ ARB and asymptomatic status (OR 2.72, CI 0.59e25.1) or serious clinical outcome (OR 0.48, CI 0.10e1.97).

Study status

Finalised

Contact details

Study institution contact

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Study contact

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Primary lead investigator

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Study timelines

Date when funding contract was signed

Planned: 16/02/2020

Actual: 16/02/2020

Study start date

Planned: 01/03/2020

Actual: 16/04/2020

Data analysis start date

Planned: 16/04/2020

Date of final study report

Planned: 31/05/2020

Actual: 31/05/2020

Sources of funding

- Other

More details on funding

Foundation Flanders (FWO) (grant number 1158818N)., Self-funded (university)

Regulatory

Was the study required by a regulatory body?

No

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

Not applicable

Other study registration identification numbers and links

https://doi.org/10.1016/j.jamda.2020.06.018

Methodological aspects

Study type

Study type list

Study topic:

Human medicinal product

Disease /health condition

Study type:

Non-interventional study

Scope of the study:

Effectiveness study (incl. comparative)

Data collection methods:

Primary data collection

Main study objective:

The objective of this study was to explore the association of ACEi/ARB and/or statins with clinical manifestations in COVID-19 infected older adults residing in nursing homes.

Study Design

Non-interventional study design

Cohort

Other

Non-interventional study design, other

Retrospective multicenter study

Study drug and medical condition

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

SIMVASTATIN

VALSARTAN

LISINOPRIL

Medical condition to be studied

COVID-19

Population studied

Short description of the study population

Elderly subjects with COVID-19 infection living in Belgian nursing homes initiated treatment with angiotensin-converting enzyme inhibitors (ACEi), angiotensin II receptor blockers (ARBs), and HMG-CoA reductase inhibitors (statins) identified from March 1 to April 16.

Age groups

- Adults (75 to < 85 years)
- Adults (85 years and over)

Special population of interest

Frail population

Other

Special population of interest, other

COVID-19 patients

Estimated number of subjects

154

Study design details

Outcomes

symptoms

Data analysis plan

Logistic regression models were applied with age, sex, functional status, diabetes, and hypertension as covariates.

Documents

Study results

2020 COVID19 RWD ElderlyBERepurposingACEiARBsSart.pdf (698.34 KB)

Study publications

De Spiegeleer A, Bronselaer A, Teo JT, Byttebier G, De Tré G, Belmans L, Dobson…

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 sources (types)

Other

Data sources (types), other

Prospective patient-based data collection

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