Clinical trial results:
Styrian Vitamin D Hypertension Trial: A randomized, double-blind, placebo controlled trial to study the effects of vitamin D supplementation on systolic blood pressure in vitamin D deficient hypertensive patients

Summary

EudraCT number	2009-018125-70
Trial protocol	AT
Global end of trial date	08 February 2015

Results information

Result version number	v1 (current)
This version publication date	06 May 2020
First version publication date	06 May 2020
Summary attachment (see zip file)	RCT paper (Styrian Hypertension.pdf)

Trial information

Trial identification

Sponsor protocol code	ENM-EA-016

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT02136771
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Medical University of Graz
Sponsor organisation address	Auenbruggerplatz 15, Graz, Austria, 8036
Public contact	Stefan Pilz, Medical University of Graz, 0043 031638581143,
Scientific contact	Stefan Pilz, Medical University of Graz, 0043 031638581143,

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	08 February 2015
Is this the analysis of the primary completion data?	Yes
Primary completion date	08 February 2015
Global end of trial reached?	Yes
Global end of trial date	08 February 2015
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To evaluate in a randomized, double-blind, placebo controlled trial whether vitamin D supplementation significantly alters mean systolic ambulatory blood pressure

Protection of trial subjects:

Regular visits at our outpatient clinic including laboratory measurements

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	03 June 2011
Long term follow-up planned	Yes
Long term follow-up rationale	Scientific research
Long term follow-up duration	10 Years
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Austria: 200
Worldwide total number of subjects	200
EEA total number of subjects	200

Notes:

Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0
Adolescents (12-17 years)	0
Adults (18-64 years)	150
From 65 to 84 years	50
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Participants were recruited from the outpatient clinics at the Department of Cardiology and the Department of Internal Medicine, Division of Endocrinology and Metabolism, Medical University of Graz, Austria. Patients were informed about the Styrian Vitamin D Hypertension Trial either by a conversation in the outpatient clinic or by telephone.

Pre-assignment

Screening details:

Eligible study participants were adults aged ≥18 years with arterial hypertension and a 25(OH)D serum concentration below 30 ng/mL (multiply by 2.496 to convert ng/mL to nmol/L).

Pre-assignment period milestones

Number of subjects started	200
Number of subjects completed	200

Period 1

Period 1 title	Randomization phase (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Investigator, Subject

Blinding implementation details:

Randomization procedures
were conducted using a web-based software (http://www.randomizer.at/) with good clinical practice compliance as confirmed by the
Austrian Agency for Health and Food Safety. Eligible study participants were randomly allocated in a 1:1 ratio to receive 2800 IU vitamin D3 as 7 oily drops per day (Oleovit D3, producer: Fresenius Kabi Austria, A-8055 Graz, Austria; 1 bottle contains 180000 IU vitamin
D3 in 12.5 mL) or otherwise a matching placebo as 7 oily drops per
day

Arms

Are arms mutually exclusive?	Yes
Arm title	Placebo

Arm description:

Oily drops as placebo

Arm type	Placebo
Investigational medicinal product name	Oleovit D3
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral drops
Routes of administration	Oral use

Dosage and administration details:

7 drops daily

Arm title	Intervention

Arm description:

Vitamin D arm

Arm type	Experimental

Investigational medicinal product name	Oleovit D3
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral drops
Routes of administration	Oral use

Dosage and administration details:

7 drops a day for 8 weeks

Number of subjects in period 1	Placebo	Intervention
Started	100	100
Completed	100	100

Baseline characteristics

Reporting groups	
Reporting group title	Placebo
Reporting group description:	
Oily drops as placebo	
Reporting group title	Intervention
Reporting group description:	
Vitamin D arm	

Reporting group values	Placebo	Intervention	Total
Number of subjects	100	100	200
Age categorical			
Age plus/minus standard deviation for the overall cohort was 60.0 plus/minus 11.1 years			
Units: Subjects			
In utero	0	0	0
Preterm newborn infants (gestational age < 37 wks)	0	0	0
Newborns (0-27 days)	0	0	0
Infants and toddlers (28 days-23 months)	0	0	0
Children (2-11 years)	0	0	0
Adolescents (12-17 years)	0	0	0
Adults (18-64 years)	75	75	150
From 65-84 years	25	25	50
85 years and over	0	0	0
Age continuous			
mean age was 60.0 years plus/minus 11.1 years			
Units: years			
arithmetic mean	59.7	60.5	
standard deviation	± 11.4	± 10.9	-
Gender categorical			
Overall 47% females 53% males			
Units: Subjects			
Female	48	46	94
Male	52	54	106

End points

End points reporting groups	
Reporting group title	Placebo
Reporting group description: Oily drops as placebo	
Reporting group title	Intervention
Reporting group description: Vitamin D arm	

Primary: 24-hour systolic blood pressure	
End point title	24-hour systolic blood pressure
End point description:	
End point type	Primary
End point timeframe: 8 weeks	

End point values	Placebo	Intervention		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	92	91		
Units: mm Hg				
arithmetic mean (standard deviation)	131.6 (± 9.8)	131.4 (± 12.4)		

Statistical analyses

Statistical analysis title	ANCOVA
Statistical analysis description: ANCOVA	
Comparison groups	Placebo v Intervention
Number of subjects included in analysis	183
Analysis specification	Pre-specified
Analysis type	equivalence
P-value	> 0.05
Method	ANCOVA
Parameter estimate	Median difference (final values)
Point estimate	50
Confidence interval	
level	95 %
sides	2-sided
lower limit	2.5
upper limit	97.5

Variability estimate	Standard error of the mean

Adverse events

Adverse events information[1]	
Timeframe for reporting adverse events:	
During the active treatment period	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	1

Reporting groups	
Reporting group title	Vitamin D Intervention
Reporting group description: -	
Reporting group title	Placebo
Reporting group description: -	

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: There were no non-serious events recorded

Serious adverse events	Vitamin D Intervention	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	6 / 100 (6.00%)	4 / 100 (4.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Investigations			
hospitalisation			
subjects affected / exposed	6 / 100 (6.00%)	4 / 100 (4.00%)	
occurrences causally related to treatment / all	0 / 6	0 / 4	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 5 %

Non-serious adverse events	Vitamin D Intervention	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	0 / 100 (0.00%)	0 / 100 (0.00%)	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported