Clinical trial results:
The effects of melatonin treatment on bone, marrow, sleep and arterial stiffness in postmenopausal women

Summary

EudraCT number	2020-002934-34
Trial protocol	DK
Global end of trial date	01 February 2022

Results information

Result version number	v1 (current)
This version publication date	24 May 2023
First version publication date	24 May 2023

Trial information

Trial identification

Sponsor protocol code	2020-AKA

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04864509
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Aarhus University Hospital
Sponsor organisation address	Palle Juul-Jensens Boulevard 99, Aarhus N, Denmark, 8200
Public contact	Klinik for knogleskørhed, Anne Kristine Amstrup, anneamst@rm.dk
Scientific contact	Klinik for knogleskørhed, Anne Kristine Amstrup, anneamst@rm.dk

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	01 February 2022
Is this the analysis of the primary completion data?	Yes
Primary completion date	01 February 2022
Global end of trial reached?	Yes
Global end of trial date	01 February 2022
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

Changes in gene expression in mesenchymal stem cells

Protection of trial subjects:

At every visit the participants were asked whether or not they had experienced adverse event to the treatment.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	23 May 2021
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Denmark: 41
Worldwide total number of subjects	41
EEA total number of subjects	41

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)	22
From 65 to 84 years	19
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

Participants were invited by letter. Recruitment period was from May to September 2021

Pre-assignment

Screening details:

Participants responding positively to the invitation received a questionnaire regarding exclusion criteria. Those who did not fulfill the exclusions criteria received further information about the study. They were further invited to an interview at the study place.

Period 1

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

Blinding implementation details:

Glostrup Pharmacy randomized the participants (using a computer) into blocks of 2,4, and 8 participants. The block-sizes were unknown to the investigators. The participants as well as the investigators were blinded to the study drug allocation

Arms

Are arms mutually exclusive?	Yes
Arm title	Melatonin

Arm description:

Nightly dose og 10mg melatonin

Arm type	Active comparator
Investigational medicinal product name	melatonin
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Coated tablet
Routes of administration	Oral use

Dosage and administration details:

10 mg nightly

Arm title	Placebo

Arm description:

Placebo

Arm type	Placebo
Investigational medicinal product name	Placebo
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Coated tablet
Routes of administration	Oral use

Dosage and administration details:

10 mg nightly

Number of subjects in period 1	Melatonin	Placebo
Started	21	20
Completed	19	20
Not completed	2	0
Adverse event, non-fatal	1	-
Illness in the nearby family	1	-

Baseline characteristics

Reporting groups	
Reporting group title	Overall period trial

Reporting group description: -

Reporting group values	Overall period trial	Total	
Number of subjects	41	41	
Age categorical			
Mean age			
Units: Subjects			
In utero		0	
Preterm newborn infants (gestational age < 37 wks)		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)		0	
From 65-84 years		0	
85 years and over		0	
Age continuous			
melatonin group: 63 (56-74) placebo group: 64 (55-75)			
Units: years			
arithmetic mean	64		
inter-quartile range (Q1-Q3)	55 to 74	-	
Gender categorical			
Postmenopausal women			
Units: Subjects			
Female	41	41	
Male	0	0	

End points

End points reporting groups	
Reporting group title	Melatonin
Reporting group description: Nightly dose og 10mg melatonin	
Reporting group title	Placebo
Reporting group description: Placebo	

Primary: Changes in mesenchymal stem cells	
End point title	Changes in mesenchymal stem cells
End point description: data still being analyzed	
End point type	Primary
End point timeframe: Changes after three months of treatment	

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	13	16		
Units: percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

Statistical analysis title	T-test
Comparison groups	Melatonin v Placebo
Number of subjects included in analysis	29
Analysis specification	Pre-specified
Analysis type	superiority
P-value	< 0.05
Method	t-test, 2-sided
Parameter estimate	Median difference (final values)
Confidence interval	
level	95 %
sides	2-sided
Variability estimate	Standard deviation

Secondary: Changes in 24H blood pressure

End point title	Changes in 24H blood pressure

End point description:

End point type	Secondary

End point timeframe:

Changes before and after three months of treatment

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	19		
Units: percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

No statistical analyses for this end point

Secondary: Changes in arterial stiffness

End point title	Changes in arterial stiffness

End point description:

data still being analyzed

End point type	Secondary

End point timeframe:

Changes before and after three months of treatment

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	19		
Units: percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

No statistical analyses for this end point

Secondary: changes in biochemical parametres

End point title	changes in biochemical parametres

End point description:

data still being analyzed

End point type	Secondary

End point timeframe:
Changes before and after three months of treatment

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	20		
Units: Percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

No statistical analyses for this end point

Secondary: Changes in BMD

End point title	Changes in BMD

End point description:
Data still being analyzed

End point type	Secondary

End point timeframe:
Changes before and after three months of treatment

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	20		
Units: percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

No statistical analyses for this end point

Secondary: Changes in quality of sleep

End point title	Changes in quality of sleep

End point description:
data still being analyzed

End point type	Secondary

End point timeframe:
Changes before and after three months of treatment

End point values	Melatonin	Placebo		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	20		
Units: percent				
median (inter-quartile range (Q1-Q3))	0 (0 to 0)	0 (0 to 0)		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information	
Timeframe for reporting adverse events:	
Period of reporting: june 2021- febuary 2022	
Assessment type	Systematic

Dictionary used	
Dictionary name	MedDRA
Dictionary version	x

Reporting groups	
Reporting group title	Melatonin
Reporting group description: -	
Reporting group title	Placebo
Reporting group description: -	

Serious adverse events	Melatonin	Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 21 (4.76%)	1 / 20 (5.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Vascular disorders			
Transient Cerebral ischaemia	Additional description: Hospitalized. Suspected of TCI. Previous history with TCIs		
subjects affected / exposed	0 / 21 (0.00%)	1 / 20 (5.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Musculoskeletal and connective tissue disorders			
Broken arm			
subjects affected / exposed	1 / 21 (4.76%)	0 / 20 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 0 %

Non-serious adverse events	Melatonin	Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	4 / 21 (19.05%)	2 / 20 (10.00%)	
General disorders and administration site conditions			

Headache			
subjects affected / exposed	1 / 21 (4.76%)	1 / 20 (5.00%)	
occurrences (all)	1	1	
Gastrointestinal disorders			
diarrhea			
subjects affected / exposed	2 / 21 (9.52%)	0 / 20 (0.00%)	
occurrences (all)	2	0	
Infections and infestations			
sore throat			
subjects affected / exposed	0 / 21 (0.00%)	1 / 20 (5.00%)	
occurrences (all)	0	1	
COVID-19			
subjects affected / exposed	1 / 21 (4.76%)	0 / 20 (0.00%)	
occurrences (all)	1	0	

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