Clinical trial results:
A trial comparing the efficacy and safety of once weekly dosing of somapacitan with daily Norditropin® in Chinese children with growth hormone deficiency

Summary

EudraCT number	2020-002974-28
Trial protocol	Outside EU/EEA
Global end of trial date	18 December 2023

Results information

Result version number	v1 (current)
This version publication date	04 July 2024
First version publication date	04 July 2024

Trial information

Trial identification

Sponsor protocol code	NN8640-4468

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04970654
WHO universal trial number (UTN)	U1111-1250-7530

Notes:

Sponsors

Sponsor organisation name	Novo Nordisk A/S
Sponsor organisation address	Novo Alle, Bagsvaerd, Denmark, 2880
Public contact	Clinical Reporting Office (2834), Novo Nordisk A/S, clinicaltrials@novonordisk.com
Scientific contact	Clinical Reporting Office (2834), Novo Nordisk A/S, clinicaltrials@novonordisk.com

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?	Yes

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	05 February 2024
Is this the analysis of the primary completion data?	No

Global end of trial reached?	Yes
Global end of trial date	18 December 2023
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To compare efficacy of somapacitan vs Norditropin on longitudinal growth in Chinese children with growth hormone deficiency (GHD)

Protection of trial subjects:

The trial was conducted in accordance with the Declaration of Helsinki (October 2013) and International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) Good Clinical Practice (November 2016) including archiving of essential documents.

Background therapy:

Not applicable

Evidence for comparator:

Not applicable

Actual start date of recruitment	22 July 2021
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	China: 110
Worldwide total number of subjects	110
EEA total number of subjects	0

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)	110
Adolescents (12-17 years)	0
Adults (18-64 years)	0
From 65 to 84 years	0

85 years and over	0

Subject disposition

Recruitment

Recruitment details:

The trial was conducted at 20 sites in China.

Pre-assignment

Screening details:

A total of 110 subjects were randomised in a 2:1 ratio to receive either somapacitan or Norditropin.

Period 1

Period 1 title	Overall Study (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Not blinded

Arms

Are arms mutually exclusive?	Yes
Arm title	Norditropin

Arm description:

Subjects received Norditropin 0.034 milligrams per kilogram (mg/kg) subcutaneously (s.c.) once daily with prefilled pen-injector for 52 weeks.

Arm type	Active comparator
Investigational medicinal product name	Norditropin
Investigational medicinal product code	
Other name	Norditropin FlexPro
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Norditropin 0.034 milligrams per kilogram (mg/kg) given subcutaneously (s.c.) once daily with prefilled pen-injector for 52 weeks.

Arm title	Somapacitan

Arm description:

Subjects received somapacitan 0.16 milligrams per kilogram (mg/kg) s.c. once weekly with prefilled pen-injector for 52 weeks.

Arm type	Experimental
Investigational medicinal product name	Somapacitan
Investigational medicinal product code	
Other name	Sogroya
Pharmaceutical forms	Solution for injection
Routes of administration	Subcutaneous use

Dosage and administration details:

Somapacitan 0.16 milligrams per kilogram (mg/kg) given s.c. once weekly with prefilled pen-injector for 52 weeks.

Number of subjects in period 1	Norditropin	Somapacitan
Started	36	74
Completed	32	71
Not completed	4	3
Unspecified	2	1
Lost to follow-up	1	-
Withdrawal by parent/guardian	1	2

Baseline characteristics

Reporting groups	
Reporting group title	Norditropin
Reporting group description:	
Subjects received Norditropin 0.034 milligrams per kilogram (mg/kg) subcutaneously (s.c.) once daily with prefilled pen-injector for 52 weeks.	
Reporting group title	Somapacitan
Reporting group description:	
Subjects received somapacitan 0.16 milligrams per kilogram (mg/kg) s.c. once weekly with prefilled pen-injector for 52 weeks.	

Reporting group values	Norditropin	Somapacitan	Total
Number of subjects	36	74	110
Age Categorical 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)	36	74	110
Adolescents (12-17 years)	0	0	0
Adults (18-64 years)	0	0	0
From 65-84 years	0	0	0
85 years and over	0	0	0
Age Continuous Units: years			
arithmetic mean	6.5	6.6	
standard deviation	± 2.3	± 2.1	-
Gender Categorical Units: Subjects			
Female	6	9	15
Male	30	65	95

End points

End points reporting groups

Reporting group title	Norditropin
Reporting group description:	
Subjects received Norditropin 0.034 milligrams per kilogram (mg/kg) subcutaneously (s.c.) once daily with prefilled pen-injector for 52 weeks.	
Reporting group title	Somapacitan
Reporting group description:	
Subjects received somapacitan 0.16 milligrams per kilogram (mg/kg) s.c. once weekly with prefilled pen-injector for 52 weeks.	

Primary: Height Velocity

End point title	Height Velocity
End point description:	
Height velocity (HV) at week 52 is reported and was derived from height measurements taken at baseline and week 52 visit in the following way: HV = (height at 52 weeks visit - height at baseline)/(time from baseline to 52 weeks visit in years). Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.	
End point type	Primary
End point timeframe:	
Height velocity (annualised) at week 52	

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	71		
Units: centimetres per year (cm/year)				
arithmetic mean (standard deviation)	10.5 (± 2.3)	11.0 (± 2.1)		

Statistical analyses

Statistical analysis title	Statistical analysis 1
Statistical analysis description:	
Height velocity at 52 weeks was analysed using a mixed model for repeated measurements, with treatment, gender, age group, growth hormone peak group and gender by age group interaction term as factors and baseline height as a covariate, all nested within week as a factor.	
Comparison groups	Norditropin v Somapacitan
Number of subjects included in analysis	103
Analysis specification	Pre-specified
Analysis type	non-inferiority[1]
Parameter estimate	Treatment difference
Point estimate	0.6

Confidence interval	
level	95 %
sides	2-sided
lower limit	-0.2
upper limit	1.3

Notes:

[1] - The non-inferiority margin of -2.0 cm/year was used in the trial. Subjects in this analysis were 110 (as analysis is based on repeated measurements, all data till week 52 is included in the analysis), incorrectly displayed as 103.

Secondary: Change in Height Standard Deviation Score (HSDS)

End point title	Change in Height Standard Deviation Score (HSDS)

End point description:

Change from baseline in HSDS at week 52 is reported. HSDS was derived using Chinese general population standards as reference data. The range for HSDS was -10 to +10. Negative scores indicated a height below the mean height for a child with the same age and gender, whereas positive scores indicated a height above the mean height for a child with the same age and gender. Positive value in change from baseline in HSDS indicated that HSDS was better than baseline HSDS. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	69		
Units: Standard deviation score				
arithmetic mean (standard deviation)	1.13 (± 0.48)	1.21 (± 0.46)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Bone Age

End point title	Change in Bone Age

End point description:

Change in bone age from visit 1 (week -14) to week 52 is reported. X-rays of left hand and wrist for bone age assessment according to the Greulich and Pyle atlas were taken. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From visit 1 (week -14) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	68		
Units: Years				
arithmetic mean (standard deviation)	1.3 (± 0.6)	1.2 (± 0.9)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Height Velocity Standard Deviation Score (HV SDS)

End point title	Change in Height Velocity Standard Deviation Score (HV SDS)

End point description:

Change from baseline in HV SDS at week 52 is reported. HV SDS was derived using Prader standards as reference data & calculated as (height velocity - mean)/standard deviation (SD), where height velocity (HV) was the HV variable measured, mean and SD of HV by gender and age for the reference population. The range for HV SDS was -10 to +10. Negative scores indicated a HV below the mean HV for a child with the same age and gender, whereas positive scores indicated a HV above the mean HV for a child with the same age and gender. Positive value in change from baseline in HV SDS indicated that HV SDS was better than baseline HV SDS. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	69		
Units: Standard deviation score				
arithmetic mean (standard deviation)	8.34 (± 3.01)	8.96 (± 3.53)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Glycated Haemoglobin (HbA1c)

End point title	Change in Glycated Haemoglobin (HbA1c)

End point description:

Change from baseline in HbA1c at week 52 is reported. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7

(week 52) or 14 days after last administration, whichever came first. Safety analysis set included all subjects randomly assigned to trial treatment & who took at least 1 dose of trial product. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	69		
Units: Percentage of HbA1c				
arithmetic mean (standard deviation)	0.09 (± 0.31)	0.19 (± 0.25)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Fasting Plasma Glucose (FPG)

End point title	Change in Fasting Plasma Glucose (FPG)

End point description:

Change from baseline in FPG at week 52 is reported. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Safety analysis set included all subjects randomly assigned to trial treatment & who took at least 1 dose of trial product. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	68		
Units: Millimoles per litre (mmol/L)				
arithmetic mean (standard deviation)	0.541 (± 0.523)	0.304 (± 0.521)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Insulin-like Growth Factor I (IGF-I) Standard Deviation Score (SDS)

End point title	Change in Insulin-like Growth Factor I (IGF-I) Standard Deviation Score (SDS)

End point description:

Change from baseline in IGF-I SDS at week 52 is reported. The range for IGF-I SDS was from -10 to +10. Negative scores indicated a IGF-I below the mean IGF-I for a child with the same age and gender, whereas positive scores indicated a IGF-I above the mean IGF-I for a child with the same age and gender. For subjects with low IGF-I SDS at baseline, a positive change from baseline in IGF-I SDS indicated a better outcome. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	67		
Units: Standard deviation score				
arithmetic mean (standard deviation)	1.73 (± 1.00)	2.09 (± 1.28)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change in Insulin-like Growth Factor Binding Protein 3 (IGFBP-3) Standard Deviation Score (SDS)

End point title	Change in Insulin-like Growth Factor Binding Protein 3 (IGFBP-3) Standard Deviation Score (SDS)

End point description:

Change from baseline in IGFBP-3 SDS at week 52 is reported. The range for IGFBP-3 SDS was from -10 to +10. Negative scores indicated a IGFBP-3 below the mean IGFBP-3 for a child with the same age and gender, whereas positive scores indicated a IGFBP-3 above the mean IGFBP-3 for a child with the same age and gender. For subjects with low IGFBP-3 SDS at baseline, a positive change from baseline in IGFBP-3 SDS indicated a better outcome. Data is reported for 'on-treatment' observation period. On-treatment observation period: from first administration and up until last trial contact, visit 7 (week 52) or 14 days after last administration, whichever came first. Full analysis set included all subjects randomised. Number of Subjects Analyzed = subjects who were evaluated for this endpoint.

End point type	Secondary

End point timeframe:

From baseline (week 0) to week 52

End point values	Norditropin	Somapacitan		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	32	67		
Units: Standard deviation score				
arithmetic mean (standard deviation)	0.93 (± 0.75)	1.06 (± 0.87)		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Up to week 70

Adverse event reporting additional description:

All presented adverse events are treatment emergent, defined as adverse events with onset after the first administration of trial product & up until 14 days after last trial drug administration. Safety analysis set included all subjects randomly assigned to trial treatment & who took at least 1 dose of trial product.

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	22

Reporting groups

Reporting group title	somapacitan

Reporting group description:

Subjects received somapacitan 0.16 milligrams per kilogram (mg/kg) s.c. once weekly with prefilled pen-injector for 52 weeks.

Reporting group title	Norditropin

Reporting group description:

Subjects received Norditropin subcutaneous (s.c.) 0.034 milligrams per kilogram (mg/kg) once daily with prefilled pen-injector for 52 weeks.

Serious adverse events	somapacitan	Norditropin	
Total subjects affected by serious adverse events			
subjects affected / exposed	8 / 74 (10.81%)	1 / 36 (2.78%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
General disorders and administration site conditions			
Oedema			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	1 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Gastrointestinal disorders			
Gastritis			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Inguinal hernia			

subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Upper gastrointestinal haemorrhage			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Respiratory, thoracic and mediastinal disorders			
Adenoidal hypertrophy			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Tonsillar hypertrophy			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Infections and infestations			
Adenovirus infection			
subjects affected / exposed	1 / 74 (1.35%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Bronchitis			
subjects affected / exposed	2 / 74 (2.70%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 2	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Pneumonia			
subjects affected / exposed	2 / 74 (2.70%)	0 / 36 (0.00%)	
occurrences causally related to treatment / all	0 / 2	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Tonsillitis			
subjects affected / exposed	0 / 74 (0.00%)	1 / 36 (2.78%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	

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

Non-serious adverse events	somapacitan	Norditropin	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	60 / 74 (81.08%)	29 / 36 (80.56%)	
Investigations			
Blood glucose increased			
subjects affected / exposed	2 / 74 (2.70%)	2 / 36 (5.56%)	
occurrences (all)	3	2	
General disorders and administration site conditions			
Influenza like illness			
subjects affected / exposed	0 / 74 (0.00%)	2 / 36 (5.56%)	
occurrences (all)	0	2	
Pyrexia			
subjects affected / exposed	18 / 74 (24.32%)	6 / 36 (16.67%)	
occurrences (all)	23	9	
Gastrointestinal disorders			
Diarrhoea			
subjects affected / exposed	3 / 74 (4.05%)	2 / 36 (5.56%)	
occurrences (all)	3	2	
Dyspepsia			
subjects affected / exposed	4 / 74 (5.41%)	2 / 36 (5.56%)	
occurrences (all)	4	2	
Gastritis			
subjects affected / exposed	2 / 74 (2.70%)	2 / 36 (5.56%)	
occurrences (all)	2	2	
Respiratory, thoracic and mediastinal disorders			
Cough			
subjects affected / exposed	12 / 74 (16.22%)	7 / 36 (19.44%)	
occurrences (all)	22	12	
Rhinorrhoea			

subjects affected / exposed	1 / 74 (1.35%)	2 / 36 (5.56%)	
occurrences (all)	1	3	
Tonsillar hypertrophy			
subjects affected / exposed	0 / 74 (0.00%)	2 / 36 (5.56%)	
occurrences (all)	0	2	
Infections and infestations			
COVID-19			
subjects affected / exposed	11 / 74 (14.86%)	7 / 36 (19.44%)	
occurrences (all)	11	7	
Influenza			
subjects affected / exposed	3 / 74 (4.05%)	3 / 36 (8.33%)	
occurrences (all)	3	4	
Respiratory tract infection			
subjects affected / exposed	9 / 74 (12.16%)	5 / 36 (13.89%)	
occurrences (all)	17	9	
Rhinitis			
subjects affected / exposed	1 / 74 (1.35%)	3 / 36 (8.33%)	
occurrences (all)	1	3	
Tonsillitis			
subjects affected / exposed	4 / 74 (5.41%)	1 / 36 (2.78%)	
occurrences (all)	4	1	
Upper respiratory tract infection			
subjects affected / exposed	40 / 74 (54.05%)	15 / 36 (41.67%)	
occurrences (all)	74	24	
Bronchitis			
subjects affected / exposed	7 / 74 (9.46%)	4 / 36 (11.11%)	
occurrences (all)	7	8	
Metabolism and nutrition disorders			
Hypertriglyceridaemia			
subjects affected / exposed	0 / 74 (0.00%)	2 / 36 (5.56%)	
occurrences (all)	0	2	

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