Clinical trial results:
Immune response after covid-19 vaccination in patients with renal failure stadium 4 or 5 .

Summary

EudraCT number	2021-000988-68
Trial protocol	SE
Global end of trial date	21 June 2022

Results information

Result version number	v1 (current)
This version publication date	12 December 2024
First version publication date	12 December 2024
Summary attachment (see zip file)	Cellular and humoral response to SARS-CoV-2 vaccine BNT162b2 in adults with Chronic Kidney Disease G45. (Cellular and humoral response_Rosdahl_2024.pdf)

Trial information

Trial identification

Sponsor protocol code	O2021-1

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	Helena Hervius Askling
Sponsor organisation address	Ambulansgatan 12 B, Stockholm, Sweden, 14157
Public contact	Infektionskliniken , Region Örebro län, +46 0196021000, anja.rosdahl@regionorebrolan.se
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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	10 June 2024
Is this the analysis of the primary completion data?	Yes
Primary completion date	21 June 2022
Global end of trial reached?	Yes
Global end of trial date	21 June 2022
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To investigate the proportion of patients with renal failure stadium 4 and 5, with or without dialysis, who have seroconverted 2 weeks after vaccine dose 2 or have at least 10^2 increase of neutralizing antibodies towards SARS-CoV-2 compared with baseline.

Protection of trial subjects:

No specific protection of subjects, since all subjects were recommended the study drug (Covid-vaccine) in the national vaccine programme. Yet, all subjects reported side effects, and vaccination was postponed in some cases with severe side effects.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	15 March 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	Sweden: 29
Worldwide total number of subjects	29
EEA total number of subjects	29

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)	28
From 65 to 84 years	1
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

A list of potential participants were provided by physicians at the local clinc. Any potential participants who had already recieved 2 vaccine doses were excluded. The remaining were contacted by letter or phone and asked if they would like to participate in the study. Any healthy rfamily member willing to participate were used as control.

Pre-assignment

Screening details:

43 subjects screened, 29 included in the study.

Pre-assignment period milestones

Number of subjects started	29
Number of subjects completed	29

Period 1

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

Arms

Are arms mutually exclusive?	Yes
Arm title	CKD grade 4 and 5

Arm description:

Adult patients with CKD grad 4 to 5

Arm type	Experimental
Investigational medicinal product name	Pfiezrs mRNA vaccin Cominarty
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate and solvent for dispersion for injection
Routes of administration	Intramuscular use

Dosage and administration details:

0.3 ml (30 mikrogram) / dose. Intramuscular injection in M deltoideus.

Arm title	Healthy control

Arm description:

Healthy controls

Arm type	Active comparator
Investigational medicinal product name	Pfiezrs mRNA vaccin Cominarty
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate and solvent for dispersion for injection
Routes of administration	Intramuscular use

Dosage and administration details:

0.3 ml (30 mikrogram) / dose. Intramuscular injection in M deltoideus.

Number of subjects in period 1	CKD grade 4 and 5	Healthy control
Started	20	9
Completed	18	9
Not completed	2	0
Consent withdrawn by subject	1	-
death due to documented malignancy	1	-

Baseline characteristics

Reporting groups	
Reporting group title	CKD grade 4 and 5
Reporting group description:	
Adult patients with CKD grad 4 to 5	
Reporting group title	Healthy control
Reporting group description:	
Healthy controls	

Reporting group values	CKD grade 4 and 5	Healthy control	Total
Number of subjects	20	9	29
Age categorical			
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			
Units: years			
median	50	41	
full range (min-max)	23 to 65	18 to 48	-
Gender categorical			
Units: Subjects			
Female	4	6	10
Male	16	3	19

End points

End points reporting groups

Reporting group title	CKD grade 4 and 5
Reporting group description: Adult patients with CKD grad 4 to 5	
Reporting group title	Healthy control
Reporting group description: Healthy controls	

Primary: Proportion with seroconversion after second vaccine dose

End point title	Proportion with seroconversion after second vaccine dose[1]
End point description: The proportion of subjects who have seroconverted or have an 10^2 increase in Spike IgG antibodies 2 weeks after the second vaccine dose.	
End point type	Primary
End point timeframe: 2 weeks after the second vaccine dose	

Notes:

[1] - No statistical analyses have been specified for this primary end point. It is expected there is at least one statistical analysis for each primary end point.
Justification: A comparison of the proportion who seroconverted in each group not valid since 100% seroconverted i both groups. The absolut number of spike IgG was compared instead with Mann-Whitney, but their were no statistic difference in abslout numbers either.

End point values	CKD grade 4 and 5	Healthy control		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	20	9		
Units: Spike IgG seroconversion yes or no				
proportion with seroconversion	20	9		

Statistical analyses

No statistical analyses for this end point

Secondary: Proportion with maintaied immunity at 3 months

End point title	Proportion with maintaied immunity at 3 months
End point description: Proportion of subjects with meassurble Spike Ig G antibodies at 3 months following primary vaccination	
End point type	Secondary
End point timeframe: 3 month after primary vaccination	

End point values	CKD grade 4 and 5	Healthy control		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	9		
Units: individuals with Spike IgG antibodies				
Maintained immunity	19	9		

Statistical analyses

No statistical analyses for this end point

Secondary: Proportion with maintained immunity at 6 months

End point title	Proportion with maintained immunity at 6 months

End point description:

Proportion of participants with meassurable Spike IgG antibodies 6 months following the primary vaccination

End point type	Secondary

End point timeframe:

6 months after the primary vaccination

End point values	CKD grade 4 and 5	Healthy control		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	19	9		
Units: Individuals with Spike IgG	19	9		

Statistical analyses

No statistical analyses for this end point

Secondary: Proportion with maintained immunity at 12 months

End point title	Proportion with maintained immunity at 12 months

End point description:

The proportion of subjects with maintained immunity as in Spike IgG antibodies at 12 months followint primary immunization

End point type	Secondary

End point timeframe:

12 months after primary immunization

End point values	CKD grade 4 and 5	Healthy control		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	18	9		
Units: individuals with Spike IgG antibodies				
maintained immunity	18	9		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

From start of trial , ie the first vaccine dose given unitl the last subject's last visit

Adverse event reporting additional description:

SAE du to trauma, planned surgery or planned medical intervention, death or hospitalisation due to documented cancerrelated disease, and serious infection not in timer related to the immunization (defined as > 4 weeks since vaccine was given) or not related to the location of injection was not reported as SAE.

Assessment type	Non-systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	27.1

Reporting groups

Reporting group title	CKD G4/5

Reporting group description:

subjects with Chronic kindey disease grade 4 or 5.

Reporting group title	healthy controls

Reporting group description:

Healthy controls

Serious adverse events	CKD G4/5	healthy controls	
Total subjects affected by serious adverse events			
subjects affected / exposed	3 / 20 (15.00%)	0 / 9 (0.00%)	
number of deaths (all causes)	1	0	
number of deaths resulting from adverse events	0	0	
Neoplasms benign, malignant and unspecified (incl cysts and polyps)			
Hospitalisation	Additional description: Hospitalisation due to malaise and deteriorating general condition as the result of advanced cancer. The SAE was not considered related to the study drug.		
subjects affected / exposed	1 / 20 (5.00%)	0 / 9 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 1	0 / 0	
Injury, poisoning and procedural complications			
eosinophil peritonitis	Additional description: Developed eosinophil peritonitis, a known komplication to peritoneal dialysis		
subjects affected / exposed	1 / 20 (5.00%)	0 / 9 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Surgical and medical procedures			

Surgery	Additional description: Surgery du to Charcot foot (Neuropathic arthropathy). The SAE was not considered caused by the study drug		
subjects affected / exposed	1 / 20 (5.00%)	0 / 9 (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			
pleuritis	Additional description: Cough and shortness of breath. Fluids in the pleural cavity. Further investigation showed communication between peritoneal cavity and pleural cavity. Patient had started peritonela dialysis. The SEA was not considered casued by the study drug.		
subjects affected / exposed	1 / 20 (5.00%)	0 / 9 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Renal and urinary disorders			
Kidney transplantation	Additional description: Non scheduled surgical event. Kidney transplantation. The SAE was not considered caused by the study drug.		
subjects affected / exposed	1 / 20 (5.00%)	0 / 9 (0.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	

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

Non-serious adverse events	CKD G4/5	healthy controls	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	18 / 20 (90.00%)	9 / 9 (100.00%)	
Nervous system disorders			
Sleep disorder			
subjects affected / exposed	2 / 20 (10.00%)	1 / 9 (11.11%)	
occurrences (all)	2	1	
General disorders and administration site conditions			
Local reaction	Additional description: Local pain, itching and / or svelling at the injection site/ arm.		
subjects affected / exposed	14 / 20 (70.00%)	8 / 9 (88.89%)	
occurrences (all)	27	29	
Sweating fever	Additional description: Sweating, fever or chills		
subjects affected / exposed	6 / 20 (30.00%)	3 / 9 (33.33%)	
occurrences (all)	8	5	
Musculoskeletal pain	Additional description: General pain in joints and muscles		

subjects affected / exposed	7 / 20 (35.00%)	3 / 9 (33.33%)	
occurrences (all)	6	4	
Fatigue	Additional description: general fatigue		
subjects affected / exposed	8 / 20 (40.00%)	3 / 9 (33.33%)	
occurrences (all)	11	6	
Headache			
subjects affected / exposed	6 / 20 (30.00%)	4 / 9 (44.44%)	
occurrences (all)	10	4	
Gastrointestinal disorders			
Nausea			
subjects affected / exposed	4 / 20 (20.00%)	2 / 9 (22.22%)	
occurrences (all)	5	2	
Infections and infestations			
common cold	Additional description: Cough, soar or itchy throat and / or nasal congestion		
subjects affected / exposed	7 / 20 (35.00%)	4 / 9 (44.44%)	
occurrences (all)	13	6	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
12 May 2021	Origanally the studie was suppose to include different arms for different covid vaccines, but before study start it was decided to only use Pfizers mRNA vaccine
01 October 2021	Due to new Swedish recommendations adding an extra vaccine dose in the primary vaccine schedule to patients with chronic kidney diseas G 5 with and without in dialysis, this was added to the protocol.
15 February 2022	Adding a booster dose to all participants according to the Swedish recommendations, including an extra (fourth dose) to subjects with chronic kidney disease G 5 woth or wothout dialysis

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported

Online references

http://www.ncbi.nlm.nih.gov/pubmed/39282145