Clinical trial results:
A two-part study with a birth cohort (Observational Stage) for early diagnosis of respiratory syncytial virus (RSV), followed by an optional phase 2a, randomized, double-blind, placebo-controlled study (Interventional Stage) to evaluate the antiviral activity, clinical outcomes, safety, tolerability and pharmacokinetics of JNJ-53718678 in infants with acute respiratory tract infection due to RSV

Summary

EudraCT number	2019-001509-25
Trial protocol	GB BE
Global end of trial date	15 May 2021

Results information

Result version number	v1 (current)
This version publication date	01 December 2021
First version publication date	01 December 2021

Trial information

Trial identification

Sponsor protocol code	53718678RSV2006

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT04068792
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Janssen Research & Development, LLC
Sponsor organisation address	920 US Highway 202, Raritan, NJ, United States, 08869-1420
Public contact	Clinical Registry Group, Janssen Research & Development, LLC, ClinicalTrialsEU@its.jnj.com
Scientific contact	Clinical Registry Group, Janssen Research & Development, LLC, ClinicalTrialsEU@its.jnj.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?	No

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	15 May 2021
Is this the analysis of the primary completion data?	No

Global end of trial reached?	Yes
Global end of trial date	15 May 2021
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

The primary objectives were as follows: In Part 1 (Observational stage) was to evaluate the onset and evolution of clinical symptoms of pediatric RSV disease and to evaluate the relationship between RSV viral load and clinical symptoms at early diagnosis of pediatric RSV disease. In Part 2:(Interventional stage) was to evaluate antiviral activity of JNJ-53718678 as measured by RSV viral load in nasal swab samples by a quantitative reverse transcription polymerase chain reaction (qRT-PCR) assay in an early intervention setting in infants (less than or equal to [<=]4 months of age at enrollment) recruited from a birth cohort.

Protection of trial subjects:

This study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki and that are consistent with Good Clinical Practices and applicable regulatory requirements. Safety and tolerability, as assessed by adverse events (AEs), clinical laboratory testing, electrocardiograms (ECGs), and vital signs, were performed throughout the interventional stage of the study.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	10 October 2019
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	Argentina: 104
Country: Number of subjects enrolled	Belgium: 14
Country: Number of subjects enrolled	United Kingdom: 11
Country: Number of subjects enrolled	Panama: 933
Country: Number of subjects enrolled	Taiwan: 148
Worldwide total number of subjects	1210
EEA total number of subjects	14

Notes:

Subjects enrolled per age group

In utero	0
Preterm newborn - gestational age < 37 wk	0

Newborns (0-27 days)	133
Infants and toddlers (28 days-23 months)	1077
Children (2-11 years)	0
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: -

Pre-assignment

Screening details:

A total of 1210 subjects were enrolled in Observational phase. Out of 1210 subjects, 22 subjects entered the Interventional phase, 11 subjects in each placebo and JNJ-53718678 arms. All subjects in the interventional phase completed the study.

Period 1

Period 1 title	Part 1: Observational Phase
Is this the baseline period?	Yes
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Arm title	Observational Stage

Arm description:

Subjects did not receive any intervention in the observational phase. Early signs and symptoms of Respiratory Syncytial Virus (RSV) disease were recorded daily using RSV app on parent/caregiver mobile phone. At a threshold score, infants received an RSV test (diagnostic phase) within 24 hours of receiving alert. RSV-negative subject (RSV[-]) returned to pre-diagnostic phase and further monitored using RSV mobile App. RSV-positive subject (RSV[+]) were enrolled in screening phase of interventional stage, after obtaining informed consent. RSV(+) subject whose parent/caregiver did not consent for enrollment in interventional stage and subject who were screen failures in interventional stage entered post-diagnostic phase of observational phase.

Arm type	RSV Mobile App
Investigational medicinal product name	JNJ-53718678
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral suspension
Routes of administration	Oral use

Dosage and administration details:

Subjects did not receive any intervention in Open-label phase. This phase was to only observe RSV symptoms using RSV mobile App.

Number of subjects in period 1	Observational Stage
Started	1210
Completed	35
Not completed	1175
Consent withdrawn by subject	23
Technical problems	1
Other	116
Lost to follow-up	4
Protocol deviation	1
RSV season	1030

Period 2

Period 2 title	Part 2: Interventional Phase
Is this the baseline period?	No
Allocation method	Randomised - controlled
Blinding used	Double blind
Roles blinded	Subject, Investigator, Carer

Arms

Are arms mutually exclusive?	Yes
Arm title	Placebo

Arm description:

As per original dosing, subjects were randomized to receive JNJ-53718678 matching placebo (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) qd for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) bid for 7 days.

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

Dosage and administration details:

Subjects in each age groups (1,2,3) were administered with JNJ-53718678 matching placebo (volume placebo to match the calculated volume of the JNJ-53718678 dose) orally once daily and twice daily (after protocol amendment 2) for 7 days.

Arm title	JNJ-53718678

Arm description:

As per original dosing, subjects were randomized to receive JNJ-53718678 (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) once daily for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) twice daily for 7 days.

Arm type	Experimental
Investigational medicinal product name	JNJ-53718678
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral suspension
Routes of administration	Oral use

Dosage and administration details:

JNJ-53718678 5 mg/kg was administered to age group 1 once daily for 7 days. After protocol amendment 2, JNJ-53718678 2.5 mg/kg was administered to age group 1 twice daily for 7 days.

Investigational medicinal product name	JNJ-53718678
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral suspension
Routes of administration	Oral use

Dosage and administration details:

JNJ-53718678 9 mg/kg was administered to age group 3 once daily for 7 days. After protocol amendment 2, JNJ-53718678 4.5 mg/kg was administered to age group 3 twice daily for 7 days.

Investigational medicinal product name	JNJ-53718678
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Oral suspension
Routes of administration	Oral use

Dosage and administration details:

JNJ-53718678 6 mg/kg was administered to age group 2 one daily for 7 days. After protocol amendment 2, JNJ-53718678 3 mg/kg was administered to age group 2 twice daily for 7 days.

Number of subjects in period 2[1]	Placebo	JNJ-53718678
Started	11	11
Completed	11	11

Notes:

[1] - The number of subjects starting the period is not consistent with the number completing the preceding period. It is expected the number of subjects starting the subsequent period will be the same as the number completing the preceding period.
Justification: Out of 35 subjects completed the baseline Observational period, 13 subjects completed only observational phase and 22 subjects entered and completed the interventional phase.

Baseline characteristics

Reporting groups	
Reporting group title	Observational Stage

Reporting group description:

Subjects did not receive any intervention in the observational phase. Early signs and symptoms of Respiratory Syncytial Virus (RSV) disease were recorded daily using RSV app on parent/caregiver mobile phone. At a threshold score, infants received an RSV test (diagnostic phase) within 24 hours of receiving alert. RSV-negative subject (RSV[-]) returned to pre-diagnostic phase and further monitored using RSV mobile App. RSV-positive subject (RSV[+]) were enrolled in screening phase of interventional stage, after obtaining informed consent. RSV(+) subject whose parent/caregiver did not consent for enrollment in interventional stage and subject who were screen failures in interventional stage entered post-diagnostic phase of observational phase.

Reporting group values	Observational Stage	Total	
Number of subjects	1210	1210	
Title for AgeCategorical			
Units: subjects			
Newborns	133	133	
Infants and Toddlers	1077	1077	
Title for AgeContinuous			
Units: months			
arithmetic mean	2		
standard deviation	± 1.14	-	
Title for Gender			
Units: subjects			
Female	579	579	
Male	629	629	
Unknown	2	2	

End points

End points reporting groups

Reporting group title	Observational Stage

Reporting group description:

Subjects did not receive any intervention in the observational phase. Early signs and symptoms of Respiratory Syncytial Virus (RSV) disease were recorded daily using RSV app on parent/caregiver mobile phone. At a threshold score, infants received an RSV test (diagnostic phase) within 24 hours of receiving alert. RSV-negative subject (RSV[-]) returned to pre-diagnostic phase and further monitored using RSV mobile App. RSV-positive subject (RSV[+]) were enrolled in screening phase of interventional stage, after obtaining informed consent. RSV(+) subject whose parent/caregiver did not consent for enrollment in interventional stage and subject who were screen failures in interventional stage entered post-diagnostic phase of observational phase.

Reporting group title	Placebo

Reporting group description:

As per original dosing, subjects were randomized to receive JNJ-53718678 matching placebo (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) qd for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) bid for 7 days.

Reporting group title	JNJ-53718678

Reporting group description:

As per original dosing, subjects were randomized to receive JNJ-53718678 (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) once daily for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) twice daily for 7 days.

Primary: Respiratory Syncytial Virus (RSV) Viral Load-time Curve from Immediately Prior to First Dose of JNJ-53718678 Through Day 5 (AUC [Day 1-5])

End point title	Respiratory Syncytial Virus (RSV) Viral Load-time Curve from Immediately Prior to First Dose of JNJ-53718678 Through Day 5 (AUC [Day 1-5])

End point description:

RSV viral load AUC was determined from immediately prior to first dose of JNJ-53718678 through Day 5. The RSV viral load was measured by quantitative reverse transcription polymerase chain reaction (qRT-PCR) assay in mid-turbinate nasal swab specimens. Intent-To-Treat-infected (ITT-i) analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of greater than or equal to (>=) 1 log10 copies per millilitre (mL) above the lower limit of quantification (LLOQ) of the RSV RT-qPCR assay at baseline.

End point type	Primary

End point timeframe:

Baseline up to Day 5 of Interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: log10 copies*day per millilitre				
arithmetic mean (confidence interval 90%)	26.13 (23.701 to 28.555)	25.10 (22.497 to 27.707)		

Statistical analyses

Statistical analysis title	Statistical Analysis 1
Comparison groups	JNJ-53718678 v Placebo
Number of subjects included in analysis	21
Analysis specification	Pre-specified
Analysis type	other
Parameter estimate	Mean difference (final values)
Point estimate	-1.03
Confidence interval	
level	90 %
sides	2-sided
lower limit	-4.467
upper limit	2.416

Secondary: Change from Baseline in RSV Viral Load Over Time

End point title	Change from Baseline in RSV Viral Load Over Time

End point description:

RSV viral load over time was measured by qRT-PCR in the nasal swab specimens. Log10 of the actual values as measured with qRT-PCR in nasal swab samples collected at the clinic visits and at home. ITT-i analysis set included all randomised subjects who received at least one dose of JNJ-53718678 and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Analyses on the ITT-i set was performed as randomised. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

On Day 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 21 of interventional phase

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	9		
Units: log10 copies per milliliter				
arithmetic mean (standard deviation)				
Day 2 (n= 10, 7)	0.022 (± 0.9247)	-0.797 (± 1.8465)		
Day 3 (n= 11, 9)	-1.329 (± 2.3903)	-1.293 (± 1.6220)		
Day 4 (n= 9, 8)	-2.002 (± 2.7624)	-1.857 (± 1.9805)		
Day 5 (n= 11, 6)	-1.638 (± 1.4728)	-2.222 (± 1.4063)		

Day 6 (n= 10, 6)	-3.391 (± 2.8796)	-3.153 (± 1.5444)		
Day 7 (n= 8, 6)	-2.667 (± 1.8529)	-3.552 (± 1.1919)		
Day 8 (n= 9, 8)	-3.630 (± 1.5622)	-4.634 (± 1.6078)		
Day 9 (n= 5, 4)	-5.046 (± 1.8708)	-5.564 (± 2.2160)		
Day 10 (n= 4, 4)	-5.782 (± 2.3406)	-5.195 (± 2.3057)		
Day 11 (n= 5, 3)	-5.580 (± 1.8008)	-5.263 (± 2.7523)		
Day 12 (n= 3, 3)	-7.225 (± 0.9469)	-4.905 (± 3.4450)		
Day 14 (n= 9, 8)	-5.439 (± 2.0248)	-5.588 (± 2.7565)		
Day 21 (n=11, 9)	-5.907 (± 1.6829)	-6.514 (± 1.5001)		

Statistical analyses

No statistical analyses for this end point

Secondary: RSV Viral Load Area Under the curve (AUC) from Immediately Prior to First Dose of Study Drug (Baseline) Through Days 3 and 8

End point title	RSV Viral Load Area Under the curve (AUC) from Immediately Prior to First Dose of Study Drug (Baseline) Through Days 3 and 8

End point description:

RSV viral load AUC will be determined by quantitative reverse transcriptase-polymerase chain reaction (qRT-PCR) assay in mid-turbinate nasal swab specimens. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Analyses on the ITT-i set was performed as randomized.

End point type	Secondary

End point timeframe:

On the day of diagnosis (Baseline) through Days 3 and 8 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: log10 copies*hour per millilitre (h/mL)				
arithmetic mean (confidence interval 90%)				
Day 3	14.44 (12.841 to 16.042)	13.70 (11.990 to 15.406)		
Day 8	39.20 (34.913 to 43.491)	35.11 (31.342 to 38.880)		

Statistical analyses

No statistical analyses for this end point

Secondary: Time to Undetectable RSV Viral Load

End point title	Time to Undetectable RSV Viral Load

End point description:

Time to undetectable RSV viral load is defined as the time in hours from initiation of study treatment until the first post baseline time point at which the virus is undetectable in an assessment and after which time no detectable virus assessment follows as measured by qRT-PCR. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Analyses on the ITT-i set was performed as randomized. Here, 99999 refers that upper limit of confidence interval was not estimable due to low numbers.

End point type	Secondary

End point timeframe:

Up to 21 days of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Hours				
median (confidence interval 90%)	500.1 (239.90 to 99999)	391.4 (185.50 to 526.20)		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Undetectable RSV Viral Load at each Time Point throughout the Study

End point title	Percentage of Subjects with Undetectable RSV Viral Load at each Time Point throughout the Study

End point description:

Percentage of subjects with undetectable RSV viral load at each time point throughout the study were reported. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'n' (number analyzed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From Baseline to Day 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 21 of interventional phase

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Percentage of Subjects				
number (not applicable)				
Baseline (n=11, 10)	0	0		
Day 2 (n=10, 7)	0	14.3		
Day 3 (n=11, 9)	9.1	11.1		
Day 4 (n=9, 8)	11.1	12.5		
Day 5 (n=11, 6)	0	0		
Day 6 (n=10, 6)	20.0	16.7		
Day 7 (n=8, 6)	0	16.7		
Day 8 (n=9, 8)	0	25.0		
Day 9 (n=5, 4)	20.0	25.0		
Day 10 (n=4, 4)	25.0	25.0		
Day 11 (n=5, 3)	20.0	33.3		
Day 12 (n=3, 3)	66.7	33.3		
Day 14 (n=9, 8)	33.3	50.0		
Day 21 (n=11, 9)	45.5	66.7		

Statistical analyses

No statistical analyses for this end point

Secondary: Duration of Signs and Symptoms of RSV Disease Assessed by the Pediatric RSV Electronic Severity and Outcome Rating System (PRESORS)

End point title	Duration of Signs and Symptoms of RSV Disease Assessed by the Pediatric RSV Electronic Severity and Outcome Rating System (PRESORS)

End point description:

Duration of signs and symptoms (sleep disturbance, crying, illness behavior, breathing problems, nasal secretions, tachypnea, tachycardia, retractions, breathing sounds, cough, feeding problems, dehydration) of RSV disease was assessed by PRESORS. PRESORS Score consisted of 5-items, each score ranges from 0 to 3. A summary score was derived (mean of the item scores) which also ranges from 0 to 3. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From baseline to Day 3, 5, 8, 14, 21 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Days				
arithmetic mean (standard deviation)				
Sleep Disturbance: Baseline (n=10,8)	1.20 (± 0.919)	0.50 (± 0.535)		

Sleep Disturbance: Day 3 (n=11,8)	0.73 (± 0.647)	0.75 (± 0.886)		
Sleep Disturbance: Day 5 (n=11,9)	0.36 (± 0.505)	0.33 (± 0.500)		
Sleep Disturbance: Day 8 (n=11,10)	0.09 (± 0.302)	0.00 (± 0.000)		
Sleep Disturbance: Day 14 (n=11,10)	0.18 (± 0.405)	0.00 (± 0.000)		
Sleep Disturbance: Day 21 (n=10,10)	0.20 (± 0.422)	0.00 (± 0.000)		
Crying: Baseline (n=10,8)	0.50 (± 0.527)	0.50 (± 0.535)		
Crying: Day 3 (n=11,8)	0.45 (± 0.820)	0.38 (± 0.518)		
Crying: Day 5 (n=11,9)	0.27 (± 0.467)	0.22 (± 0.441)		
Crying: Day 8 (n=11,10)	0.09 (± 0.302)	0.10 (± 0.316)		
Crying: Day 14 (n=11,10)	0.09 (± 0.302)	0.00 (± 0.000)		
Crying: Day 21 (n=10,10)	0.10 (± 0.316)	0.00 (± 0.000)		
Illness Behavior: Baseline (n=10,8)	1.00 (± 0.943)	1.13 (± 0.991)		
Illness Behavior: Day 3 (n=11,8)	1.45 (± 0.688)	1.00 (± 0.756)		
Illness Behavior: Day 5 (n=11,9)	0.64 (± 0.809)	0.67 (± 0.866)		
Illness Behavior: Day 8 (n=11,10)	0.27 (± 0.647)	0.40 (± 0.843)		
Illness Behavior: Day 14 (n=11,10)	0.18 (± 0.603)	0.10 (± 0.316)		
Illness Behavior: Day 21 (n=10,10)	0.20 (± 0.632)	0.00 (± 0.000)		
Breathing Problems: Baseline (n=10,8)	0.00 (± 0.000)	0.25 (± 0.707)		
Breathing Problems: Day 3 (n=11,8)	0.64 (± 1.120)	0.00 (± 0.000)		
Breathing Problems: Day 5 (n=11,9)	0.00 (± 0.000)	0.00 (± 0.000)		
Breathing Problems: Day 8 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Breathing Problems: Day 14 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Breathing Problems: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Nasal Secretions: Baseline (n=10,8)	1.70 (± 0.483)	1.63 (± 0.518)		
Nasal Secretions: Day 3 (n=11,8)	1.36 (± 0.674)	1.00 (± 0.756)		
Nasal Secretions: Day 5 (n=11,9)	1.09 (± 0.701)	0.78 (± 0.667)		
Nasal Secretions: Day 8 (n=11,10)	0.91 (± 0.701)	0.50 (± 0.707)		
Nasal Secretions: Day 14 (n=11,10)	0.27 (± 0.647)	0.20 (± 0.422)		
Nasal Secretions: Day 21 (n=10,10)	0.30 (± 0.675)	0.00 (± 0.000)		
Tachypnea: Baseline (n=10,8)	0.40 (± 0.843)	0.00 (± 0.000)		
Tachypnea: Day 3 (n=11,8)	0.36 (± 0.809)	0.25 (± 0.707)		
Tachypnea: Day 5 (n=11,9)	0.18 (± 0.603)	0.22 (± 0.667)		
Tachypnea: Day 8 (n=11,10)	0.36 (± 0.809)	0.00 (± 0.000)		
Tachypnea: Day 14 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Tachypnea: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Tachycardia: Baseline (n=10,8)	0.20 (± 0.632)	0.00 (± 0.000)		
Tachycardia: Day 3 (n=11,8)	0.00 (± 0.000)	0.25 (± 0.707)		
Tachycardia: Day 5 (n=11,9)	0.00 (± 0.000)	0.00 (± 0.000)		
Tachycardia: Day 8 (n=11,10)	0.18 (± 0.603)	0.00 (± 0.000)		
Tachycardia: Day 14 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Tachycardia: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Retractions: Baseline (n=10,8)	0.40 (± 0.843)	0.25 (± 0.707)		
Retractions: Day 3 (n=11,8)	0.91 (± 1.044)	0.25 (± 0.707)		
Retractions: Day 5 (n=11,9)	0.18 (± 0.603)	0.22 (± 0.667)		
Retractions: Day 8 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Retractions: Day 14 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Retractions: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Breathing Sounds: Baseline (n=10,8)	2.10 (± 1.449)	1.00 (± 1.414)		
Breathing Sounds: Day 3 (n=11,8)	1.82 (± 1.471)	0.88 (± 1.246)		
Breathing Sounds: Day 5 (n=11,9)	1.55 (± 1.508)	0.67 (± 1.000)		
Breathing Sounds: Day 8 (n=11,10)	1.64 (± 1.567)	0.70 (± 1.160)		
Breathing Sounds: Day 14 (n=11,10)	0.55 (± 1.214)	0.20 (± 0.632)		

Breathing Sounds: Day 21 (n=10,10)	0.60 (± 1.265)	0.00 (± 0.000)		
Cough: Baseline (n=10,8)	2.40 (± 0.699)	1.88 (± 0.835)		
Cough: Day 3 (n=11,8)	2.18 (± 0.751)	2.00 (± 1.069)		
Cough: Day 5 (n=11,9)	2.00 (± 0.894)	1.11 (± 0.601)		
Cough: Day 8 (n=11,10)	1.45 (± 0.688)	0.70 (± 0.675)		
Cough: Day 14 (n=11,10)	0.27 (± 0.905)	0.30 (± 0.483)		
Cough: Day 21 (n=10,10)	0.30 (± 0.949)	0.10 (± 0.316)		
Feeding Problems: Baseline (n=10,8)	0.40 (± 0.516)	0.00 (± 0.000)		
Feeding Problems: Day 3 (n=11,8)	0.18 (± 0.405)	0.38 (± 0.518)		
Feeding Problems: Day 5 (n=11,9)	0.45 (± 0.688)	0.22 (± 0.441)		
Feeding Problems: Day 8 (n=11,10)	0.18 (± 0.603)	0.10 (± 0.316)		
Feeding Problems: Day 14 (n=11,10)	0.00 (± 0.000)	0.0 (± 0.000)		
Feeding Problems: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Baseline (n=10,8)	0.20 (± 0.632)	0.25 (± 0.707)		
Dehydration: Day 3 (n=11,8)	0.18 (± 0.603)	0.00 (± 0.000)		
Dehydration: Day 5 (n=11,9)	0.55 (± 0.934)	0.00 (± 0.000)		
Dehydration: Day 8 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 14 (n=11,10)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 21 (n=10,10)	0.00 (± 0.000)	0.00 (± 0.000)		

Statistical analyses

No statistical analyses for this end point

Secondary: Severity of Signs and Symptoms of RSV Infection Assessed by the PRESORS

End point title	Severity of Signs and Symptoms of RSV Infection Assessed by the PRESORS

End point description:

The severity of signs and symptoms of RSV infection (fever, cough, sputum, wheezing, difficulty breathing, nasal congestion, and feeding issues) were assessed by the PRESORS. PRESORS Score consisted of 5-items, each score ranges from 0 to 3. A summary score was derived (mean of the item scores) which also ranges from 0 to 3. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

Baseline up to Day 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Unit on scale				
arithmetic mean (standard deviation)				
Baseline (n=10,8)	0.88 (± 0.189)	0.61 (± 0.378)		
Day 2 (n=10,8)	0.95 (± 0.405)	0.81 (± 0.570)		
Day 3 (n=11,8)	0.86 (± 0.350)	0.59 (± 0.505)		

Day 4 (n=11,8)	0.83 (± 0.422)	0.47 (± 0.450)		
Day 5 (n=11,9)	0.61 (± 0.277)	0.37 (± 0.371)		
Day 6 (n=11,9)	0.52 (± 0.305)	0.32 (± 0.444)		
Day 7 (n=11,8)	0.32 (± 0.247)	0.25 (± 0.330)		
Day 8 (n=11,10)	0.43 (± 0.268)	0.21 (± 0.295)		
Day 9 (n=11,7)	0.27 (± 0.258)	0.10 (± 0.089)		
Day 10 (n=11,10)	0.23 (± 0.273)	0.13 (± 0.143)		
Day 11 (n=11,9)	0.19 (± 0.296)	0.09 (± 0.128)		
Day 12 (n=11,9)	0.17 (± 0.281)	0.12 (± 0.196)		
Day 13 (n=11,10)	0.14 (± 0.296)	0.13 (± 0.153)		
Day 14 (n=11,9)	0.13 (± 0.299)	0.06 (± 0.091)		
Day 15 (n=11,7)	0.12 (± 0.301)	0.06 (± 0.125)		
Day 16 (n=10,10)	0.16 (± 0.313)	0.03 (± 0.081)		
Day 17 (n=8,9)	0.16 (± 0.376)	0.06 (± 0.093)		
Day 18 (n=9,10)	0.13 (± 0.328)	0.08 (± 0.159)		
Day 19 (n=10,8)	0.14 (± 0.312)	0.05 (± 0.147)		
Day 20 (n=9,10)	0.16 (± 0.327)	0.05 (± 0.105)		
Day 21 (n=9,9)	0.16 (± 0.327)	0.01 (± 0.028)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change from Baseline in Parent(s)/Caregiver(s) PRESORS Scores

End point title	Change from Baseline in Parent(s)/Caregiver(s) PRESORS Scores

End point description:

Change from baseline in parent(s)/caregiver(s) PRESORS scores was reported. PRESORS Score consisted of 5-items, each score ranges from 0 to 3. A summary score was derived (mean of the item scores) which also ranges from 0 to 3. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

Day 3, 5, 8, 14, 21 of interventional phase

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	10	8		
Units: Units on scale				
arithmetic mean (standard deviation)				
Day 3 (n= 10,7)	0.01 (± 0.341)	-0.02 (± 0.249)		
Day 5 (n= 10,8)	-0.27 (± 0.309)	-0.26 (± 0.437)		
Day 8 (n= 10,8)	-0.42 (± 0.314)	-0.39 (± 0.508)		

Day 14 (n= 10,8)	-0.73 (± 0.396)	-0.54 (± 0.396)		
Day 21 (n= 9,8)	-0.70 (± 0.408)	-0.60 (± 0.390)		

Statistical analyses

No statistical analyses for this end point

Secondary: Change from Baseline in Clinician PRESORS Score

End point title	Change from Baseline in Clinician PRESORS Score

End point description:

Change from baseline in clinician (for concepts: activity level, sleep disturbance, breathing problems, retractions, tachypnea, feeding problem, cough, nasal secretions, wheezing, dehydration) PRESORS scores was reported. PRESORS Score consisted of 5-items, each score ranges from 0 to 3. A summary score was derived (mean of the item scores) which also ranges from 0 to 3. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From Baseline to Day 3, 5, 8, 14, 21 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	9	7		
Units: Units on scale				
arithmetic mean (standard deviation)				
Activity Level: Day 3 (8,7)	-0.25 (± 0.707)	0.00 (± 0.000)		
Activity Level: Day 5 (9,6)	-0.44 (± 0.527)	0.00 (± 0.000)		
Activity Level: Day 8 (9,6)	-0.44 (± 0.527)	-0.17 (± 0.408)		
Activity Level: Day 14 (9,4)	-0.44 (± 0.527)	0.00 (± 0.000)		
Activity Level: Day 21 (9,6)	-0.44 (± 0.527)	-0.17 (± 0.408)		
Sleep Disturbance: Day 3 (n=8,7)	0.00 (± 0.756)	-0.29 (± 0.756)		
Sleep Disturbance: Day 5 (n=9,7)	-0.56 (± 0.527)	-0.29 (± 0.488)		
Sleep Disturbance: Day 8 (n=9,7)	-0.56 (± 0.572)	-0.43 (± 0.535)		
Sleep Disturbance: Day 14 (n=9,6)	-0.56 (± 0.572)	-0.33 (± 0.516)		
Sleep Disturbance: Day 21 (n=9,7)	-0.56 (± 0.572)	-0.57 (± 0.0535)		
Breathing Problems: Day 3 (n=8,7)	-0.13 (± 0.353)	0.00 (± 1.155)		

Breathing Problems: Day 5 (n=9,7)	-0.44 (± 1.333)	0.00 (± 1.155)		
Breathing Problems: Day 8 (n=9,7)	-0.44 (± 1.333)	-0.57 (± 0.976)		
Breathing Problems: Day 14 (n=9,6)	-0.89 (± 1.054)	-0.67 (± 1.033)		
Breathing Problems: Day 21 (n=9,7)	-0.89 (± 1.054)	-0.67 (± 1.033)		
Retractions: Day 3 (n=8,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Retractions: Day 5 (n=9,7)	-0.44 (± 0.882)	0.00 (± 0.000)		
Retractions: Day 8 (n=9,7)	-0.44 (± 0.882)	0.00 (± 0.000)		
Retractions: Day 14 (n=9,6)	-0.44 (± 0.882)	0.00 (± 0.000)		
Retractions: Day 21 (n=9,7)	-0.44 (± 0.882)	-0.29 (± 0.756)		
Tachypnea: Day 3 (n=8,7)	0.25 (± 0.707)	0.00 (± 0.000)		
Tachypnea: Day 5 (n=9,7)	0.00 (± 0.000)	-0.29 (± 0.756)		
Tachypnea: Day 8 (n=9,7)	0.00 (± 0.000)	-0.29 (± 0.756)		
Tachypnea: Day 14 (n=9,6)	0.00 (± 0.000)	0.00 (± 0.000)		
Tachypnea: Day 21 (n=9,7)	0.00 (± 0.000)	-0.29 (± 0756)		
Feeding Problems: Day 3 (n=8,7)	0.00 (± 1.069)	0.29 (± 0.756)		
Feeding Problems: Day 5 (n=9,7)	0.00 (± 1.000)	0.00 (± 0.000)		
Feeding Problems: Day 8 (n=9,7)	-0.22 (± 0.667)	0.00 (± 0.000)		
Feeding Problems: Day 14 (n=9,6)	-0.22 (± 0.667)	0.00 (± 0.000)		
Feeding Problems: Day 21 (n=9,7)	-0.22 (± 0.667)	0.00 (± 0.000)		
Cough: Day 3 (n=8,7)	-0.25 (± 1.488)	0.29 (± 0.488)		
Cough: Day 5 (n=9,7)	-1.11 (± 1.269)	0.43 (± 0.535)		
Cough: Day 8 (n=9,7)	-1.22 (± 1.093)	0.14 (± 0.378)		
Cough: Day 14 (n=9,6)	-1.33 (± 1.000)	0.33 (± 0.516)		
Cough: Day 21 (n=9,7)	-1.33 (± 1.000)	0.00 (± 0.000)		
Nasal Secretions: Day 3 (n=8,7)	0.25 (± 0.707)	-0.29 (± 0.488)		
Nasal Secretions: Day 5 (n=9,7)	-0.22 (± 0.667)	-0.29 (± 0.488)		
Nasal Secretions: Day 8 (n=9,7)	-0.22 (± 0.667)	-0.29 (± 0.488)		
Nasal Secretions: Day 14 (n=9,6)	-0.33 (± 0.500)	-0.33 (± 0.516)		
Nasal Secretions: Day 21 (n=9,7)	-0.33 (± 0.500)	-0.29 (± 0.488)		
Wheezing: Day 3 (n=8,7)	0.38 (± 0.744)	0.14 (± 0.378)		
Wheezing: Day 5 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Wheezing: Day 8 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Wheezing: Day 14 (n=9,6)	0.00 (± 0.000)	0.00 (± 0.000)		
Wheezing: Day 21 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 3 (n=8,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 5 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		

Dehydration: Day 8 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 14 (n=9,6)	0.00 (± 0.000)	0.00 (± 0.000)		
Dehydration: Day 21 (n=9,7)	0.00 (± 0.000)	0.00 (± 0.000)		

Statistical analyses

No statistical analyses for this end point

Secondary: Time to Resolution of RSV Symptoms

End point title	Time to Resolution of RSV Symptoms

End point description:

Time to resolution (that is, to none or mild) of RSV symptoms (breathing problems, retractions, tachypnea, breathing sounds, cough, tachycardia, nasal secretions, sleep disturbance, crying, illness behavior, feeding problems, and dehydration) was recorded. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of>=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline.

End point type	Secondary

End point timeframe:

Up to 21 days of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Hours				
median (confidence interval 90%)	194.00 (164.20 to 238.00)	118.60 (17.00 to 238.00)		

Statistical analyses

No statistical analyses for this end point

Secondary: Time to Improvement on Overall Health

End point title	Time to Improvement on Overall Health

End point description:

Time to improvement based on general questions on overall health was reported. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Analyses on the ITT-i set was performed as randomized.

End point type	Secondary

End point timeframe:

Up to 21 days of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Hours				
median (confidence interval 90%)	188.3 (183.60 to 238.00)	199.7 (183.70 to 238.00)		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Worsening or Improvement of RSV Disease

End point title	Percentage of Subjects with Worsening or Improvement of RSV Disease

End point description:

Percentage of subjects with worsening or improvement of RSV disease based on general questions on overall health was reported. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

On Day 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 of interventional phase

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Percentage of Subjects				
number (not applicable)				
Day 2 : Very Much Improved (n=3,1)	0	0		
Day 2: Very Much Worse (n=3,1)	0	0		
Day 3: Very Much Improved (n=3,1)	0	0		
Day 3: Very Much Worse (n=3,1)	0	0		
Day 4: Very Much Improved (n=3,1)	0	0		
Day 4: Very Much Worse (n=3,1)	0	0		
Day 5: Very Much Improved (n=3,1)	0	0		
Day 5: Very Much Worse (n=3,1)	0	0		
Day 6: Very Much Improved (n=3,1)	2	0		
Day 6: Very Much Worse (n=3,1)	0	0		
Day 7: Very Much Improved (n=3,1)	2	0		
Day 7: Very Much Worse (n=3,1)	0	0		
Day 8: Very Much Improved (n=3,2)	1	1		
Day 8: Very Much Worse (n=3,2)	0	0		
Day 9: Very Much Improved (n=10,7)	6	3		
Day 9: Very Much Worse (n=10,7)	0	0		
Day 10: Very Much Improved (n=11,10)	4	5		
Day 10 Very Much Worse (n=11,10)	0	0		

Day 11 Very Much Improved (n=11,8)	6	3		
Day 11: Very Much Worse (n=11,8)	0	0		
Day 12 Very Much Improved (n=11,8)	6	5		
Day 12: Very Much Worse (n=11,8)	0	0		
Day 13 Very Much Improved (n=11,10)	10	5		
Day 13: Very Much Worse (n=11,10)	0	0		
Day 14: Very Much Improved (n=11,9)	10	5		
Day 14: Very Much Worse (n=11,9)	0	0		
Day 15: Very Much Improved (n=11,7)	10	4		
Day 15: Very Much Worse (n=11,7)	0	0		
Day 16: Very Much Improved (n=9,10)	7	8		
Day 16: Very Much Worse (n=9,10)	0	0		
Day 17: Very Much Improved (n=8,9)	7	8		
Day 17: Very Much Worse (n=8,9)	0	0		
Day 18: Very Much Improved (n=9,10)	8	8		
Day 18: Very Much Worse (n=9,10)	0	0		
Day 19: Very Much Improved (n=10,8)	9	6		
Day 19: Very Much Worse (n=10,8)	0	0		
Day 20: Very Much Improved (n=9,10)	8	7		
Day 20: Very Much Worse (n=9,10)	0	0		
Day 21: Very Much Improved (n=9,9)	8	7		
Day 21: Very Much Worse (n=9,9)	0	0		

Statistical analyses

No statistical analyses for this end point

Secondary: Time to Return to Pre-RSV Health as Rated by the Parent(s)/Caregiver(s)

End point title	Time to Return to Pre-RSV Health as Rated by the Parent(s)/Caregiver(s)

End point description:

Time to return to pre-RSV health as rated by the parent(s)/caregiver(s) was evaluated. It is the time from first dose of study drug until the time to return to pre-RSV disease level. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline.

End point type	Secondary

End point timeframe:

Up to 21 days of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	10		
Units: Hours				
median (confidence interval 90%)	194.0 (164.20 to 238.00)	118.6 (17.00 to 238.00)		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects who Require (re)Hospitalization During Treatment and Follow-up

End point title	Percentage of Subjects who Require (re)Hospitalization During Treatment and Follow-up

End point description:

Percentage of subjects who require (re)hospitalization during treatment and follow-up were reported. ITT-i analysis set included all randomized subjects who received at least one dose of study drug and who had a centrally confirmed RSV viral load of >=1 log10 copies per mL above the LLOQ of the RSV RT-qPCR assay at baseline. Analyses on the ITT-i set was performed as randomized.

End point type	Secondary

End point timeframe:

Up to 28 days of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	11		
Units: Percentage of subjects				
number (not applicable)	9.1	18.2		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Adverse Events as a Measure of Safety and Tolerability

End point title	Percentage of Subjects with Adverse Events as a Measure of Safety and Tolerability

End point description:

An adverse event is any untoward medical event that occurs in a participant administered an investigational product, and it does not necessarily indicate only events with clear causal relationship with the relevant investigational product. The Safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analyzed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received.

End point type	Secondary

End point timeframe:

From screening up to maximum of Day 31 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	11		
Units: Percentage of subjects				
number (not applicable)	27.3	27.3		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Abnormal Chemistry Laboratory Findings

End point title	Percentage of Subjects with Abnormal Chemistry Laboratory Findings

End point description:

Percentage of subject with abnormal chemistry laboratory findings were reported. It included alanine aminotransferase (Grade 1 and 4), aspartate aminotransferase (Grade 1). Hyperkalemia (Grade 1 and 2). The safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analyzed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received. Here 'n' (number analyzed) included all subjects who were analyzed at specified categories.

End point type	Secondary

End point timeframe:

From screening up to Day 28 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	11		
Units: Percentage of Subject				
number (not applicable)				
Alanine Aminotransferase Increase-Grade1 (n=11,11)	9.1	0		
Alanine Aminotransferase Increase-Grade4 (n=11,11)	9.1	0		
Aspartate Aminotransferase- Grade 1 (n=11,11)	9.1	18.2		
Hyperkalemia-Grade 1 (n=10,11)	30.0	0		
Hyperkalemia-Grade 2 (n=10,11)	10.0	0		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Abnormal Urinalysis Laboratory Findings

End point title	Percentage of Subjects with Abnormal Urinalysis Laboratory Findings

End point description:

Percentage of subject with abnormal urinalysis (Hematuria- Grade 1) laboratory finding was reported. The Safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analyzed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received. Here 'N' (number of subjects analyzed), included all subjects who were evaluable for this endpoint.

End point type	Secondary

End point timeframe:

From screening up to Day 28 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	4	4		
Units: Percentage of Subject				
number (not applicable)	0	25.0		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Abnormal Electrocardiograms (ECGs) Findings

End point title	Percentage of Subjects with Abnormal Electrocardiograms (ECGs) Findings

End point description:

Percentage of subjects with abnormal ECGs findings were reported. Parameters for abnormal ECG finding were QTcB Interval ([450 millisecond [ms], 480 ms], [480 ms, 500 ms], and [more than 500 ms]), QTcF Interval ([450 ms, 480 ms], [480 ms, 500 ms], and [more than 500 ms]), change from baseline for QTcB Interval (less than or equal [<=] 30 ms, [30; 60] ms, and greater than [>] 60 ms), and for QTcF Interval (<=30 ms, [30; 60] ms, and >60 ms). The Safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analyzed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received. Here 'N' (number of subjects analyzed), included all subjects who were evaluable for this endpoint. Here 'n' (number analyzed) included all subjects who were analyzed for specified categories.

End point type	Secondary

End point timeframe:

From screening up to Day 28 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	10	11		
Units: Percentage of subjects				
number (not applicable)				
QTcB Interval [450 ms, 480 ms] (n=10,11)	20.0	9.1		
QTcB Interval [480 ms, 500 ms] (n=10,11)	0	0		
QTcB Interval (More than 500 ms) (n=10,11)	0	0		
QTcF Interval [450 ms, 480 ms] (n=10,11)	0	0		
QTcF Interval [480 ms, 500 ms] (n=10,11)	0	0		
QTcF Interval (More than 500 ms) (n=10,11)	0	0		
QTcB Interval (<=30 ms) (n=10,11)	100.0	90.9		
QTcB Interval [30; 60] ms (n=10,11)	0	9.1		
QTcB Interval (>60 ms) (n=10,11)	0	0		
QTcF Interval (<=30 ms) (n=10,11)	100.0	90.9		
QTcF Interval [30; 60] ms (n=10,11)	0	9.1		
QTcF Interval (>60 ms) (n=10,11)	0	0		

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects with Vital Sign Abnormalities

End point title	Percentage of Subjects with Vital Sign Abnormalities

End point description:

Percentage of subjects with vital signs (systolic blood pressure [SBP], diastolic blood pressure [DBP], pulse rate, respiratory rate, body temperature and peripheral capillary oxygen saturation [SpO2]) abnormalities (abnormally low [ABL] and abnormally high [ABH]) were reported. The Safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analyzed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received. Here 'n' (number analyzed) included all subjects who were analyzed for specified categories.

End point type	Secondary

End point timeframe:

From screening up to Day 28 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	11	11		
Units: Percentage of subjects				
number (not applicable)				
SBP- ABL (n=11,10)	9.1	0		
SBP- ABH (n=11,10)	0	0		

DBP- ABL (n=11,10)	9.1	0		
DBP- ABH (n=11,10)	0	0		
Pulse rate- ABL (n=11,11)	0	0		
Pulse rate- ABH (n=11,11)	9.1	18.2		
Respiratory Rate-ABL (n=11,11)	9.1	0		
Respiratory Rate-ABH (n=11,11)	0	0		
Temperature-ABL (n=11,11)	0	0		
Temperature-ABH (n=11,11)	27.3	45.5		
Oxygen Saturation- ABL (n=10,6)	0	0		
Oxygen Saturation- ABH (n=10,6)	0	0		

Statistical analyses

No statistical analyses for this end point

Secondary: Plasma Concentrations of JNJ-53718678

End point title	Plasma Concentrations of JNJ-53718678

End point description:

Pharmacokinetic (PK) analysis were not performed as the amount of data available was not sufficient for PK analysis.

End point type	Secondary

End point timeframe:

Day 1 and Day 3 of interventional stage

End point values	Placebo	JNJ-53718678		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	0[1]	0[2]		
Units: Nanograms per milliliter (ng/mL)				
arithmetic mean (standard deviation)	()	()		

Notes:

[1] - PK analysis not performed due to insufficient data. Hence, 'N' (number of subjects analysed) is 0.

[2] - PK analysis not performed due to insufficient data. Hence, 'N' (number of subjects analysed) is 0.

Statistical analyses

No statistical analyses for this end point

Secondary: Part 1: RSV Symptom Score

End point title	Part 1: RSV Symptom Score

End point description:

RSV Symptom Score was captured by RSV mobile Application (App) during the pre-diagnostic phase and the post-diagnostic phase for RSV positive subjects who do not enter in the interventional stage. Respiratory symptom severity score: breathing problems, retractions, tachypnea, breathing sounds, cough, tachycardia, and nasal secretions. RSV positive (+) Analysis Set- Observational Stage: included all the subjects with a positive RSV diagnostic test who did not enter the interventional stage. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From baseline to Day 2, 3, 4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21 of observational stage

End point values	Observational Stage			
Subject group type	Reporting group			
Number of subjects analysed	13			
Units: Units on scale				
arithmetic mean (standard deviation)				
Baseline (n=13)	0.71 (± 0.456)			
Day 2 (n=11)	0.51 (± 0.199)			
Day 3 (n=12)	0.58 (± 0.452)			
Day 4 (n=12)	0.51 (± 0.290)			
Day 5 (n=9)	0.36 (± 0.228)			
Day 6 (n=9)	0.47 (± 0.325)			
Day 7 (n=8)	0.30 (± 0.227)			
Day 8 (n=8)	0.44 (± 0.456)			
Day 9 (n=11)	0.30 (± 0.267)			
Day 10 (n=7)	0.30 (± 0.438)			
Day 11 (n=9)	0.28 (± 0.339)			
Day 12 (n=9)	0.17 (± 0.167)			
Day 13 (n=10)	0.26 (± 0.337)			
Day 14 (n=8)	0.08 (± 0.118)			
Day 15 (n=8)	0.26 (± 0.346)			
Day 16 (n=8)	0.31 (± 0.415)			
Day 17 (n=11)	0.17 (± 0.209)			
Day 18 (n=6)	0.18 (± 0.214)			
Day 19 (n=8)	0.18 (± 0.250)			
Day 20 (n=8)	0.23 (± 0.317)			
Day 21 (n=6)	0.24 (± 0.374)			

Statistical analyses

No statistical analyses for this end point

Secondary: Part 1: PRESORS Scores by the Clinician (Clinician PRESORS) on the Day of RSV Diagnosis

End point title	Part 1: PRESORS Scores by the Clinician (Clinician PRESORS) on the Day of RSV Diagnosis

End point description:

Clinician PRESORS scores will be reported for hospitalized RSV positive participants. Clinician PRESORS is a questionnaire recording presence and severity of signs and symptoms of RSV disease (fever, cough, sputum, wheezing, difficulty breathing, nasal congestion, and feeding issues) by clinician. RSV (+) Analysis Set- Observational Stage: included all the subjects with a positive RSV diagnostic test who did not enter the interventional stage. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

On the day of RSV diagnosis (Baseline) up to Discharge post-diagnosis (21 Days) of observational stage

End point values	Observational Stage			
Subject group type	Reporting group			
Number of subjects analysed	13			
Units: units on scale				
arithmetic mean (standard deviation)				
Activity Level (n=11)	0.18 (± 0.405)			
Sleep Disturbance (n=13)	0.38 (± 0.506)			
Breathing Problems (n=13)	0.38 (± 0.961)			
Retractions (n=13)	0.31 (± 0.751)			
Tachypnea (n=13)	0.15 (± 0.555)			
Feeding Problems (n=13)	0.69 (± 1.109)			
Cough (n=13)	0.54 (± 0.519)			
Nasal Secretions (n=13)	0.85 (± 0.689)			
Wheezing (n=13)	0.00 (± 0.000)			
Dehydration (n=13)	0.00 (± 0.000)			

Statistical analyses

No statistical analyses for this end point

Secondary: Part 1: RSV Viral Load During Pre-Diagnostic Phase

End point title	Part 1: RSV Viral Load During Pre-Diagnostic Phase

End point description:

RSV Viral load during pre-diagnostic phase was determined based on measurements of RSV viral load in nasal secretions by a qRT-PCR assay in mid-turbinate nasal swab specimens. All Enrolled Analysis Set-Observational Stage included all subjects who signed the ICF of the observational stage and were classified as eligible. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint.

End point type	Secondary

End point timeframe:

Pre-diagnostic phase: Within 24hrs of Observation Day 1

End point values	Observational Stage			
Subject group type	Reporting group			
Number of subjects analysed	12			
Units: Log10 copies/mL				
arithmetic mean (standard deviation)	7.529 (± 1.1371)			

Statistical analyses

No statistical analyses for this end point

Secondary: Part 1: RSV Viral Load Kinetics from Day 1 to Day 8

End point title	Part 1: RSV Viral Load Kinetics from Day 1 to Day 8

End point description:

RSV viral load kinetics from Day 1 to Day 8 after RSV diagnosis over time (if not participating in the interventional stage) was measured by real-time qRT-PCR assay in the mid-turbinate nasal swab specimens. RSV (+) Analysis Set- Observational Stage: included all the subjects with a positive RSV diagnostic test who did not enter the interventional stage. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From Baseline Day 2, 3, 4, 5, 6, 7, 8 of observational stage

End point values	Observational Stage			
Subject group type	Reporting group			
Number of subjects analysed	12			
Units: Log10 copies/mL				
arithmetic mean (standard deviation)				
Baseline (n=12)	7.194 (± 0.9462)			
Day 2 (n=7)	6.495 (± 1.8904)			
Day 3 (n=7)	5.937 (± 1.7768)			
Day 4 (n=7)	4.947 (± 1.4159)			
Day 5 (n=6)	3.274 (± 1.9774)			
Day 6 (n=6)	3.068 (± 1.9636)			
Day 7 (n=4)	2.595 (± 1.8282)			
Day 8 (n=6)	2.675 (± 1.4538)			

Statistical analyses

No statistical analyses for this end point

Secondary: Part 1: Change from Baseline in Parent(s)/Caregiver(s) PRESORS Scores Over Time

End point title	Part 1: Change from Baseline in Parent(s)/Caregiver(s) PRESORS Scores Over Time

End point description:

Change from baseline in Parent(s)/Caregiver(s) (for concepts: sleep disturbance, crying, illness behavior, breathing problems, retractions, tachypnea, tachycardia, breathing sounds, feeding problem, cough, nasal secretions, dehydration) PRESORS scores was reported. PRESORS Score consisted of 5-items, each score ranges from 0 to 3. A summary score was derived (mean of the item scores) which also ranges from 0 to 3. RSV (+) Analysis Set- Observational Stage: included all the subjects with a positive RSV diagnostic test who did not enter the interventional stage. Here 'N' (number of subjects analysed), included all subjects who were evaluable for this endpoint. Here 'n' (number analysed) included all subjects who were analysed at specified timepoints.

End point type	Secondary

End point timeframe:

From baseline to Day 3, 5, 8, 14, 21 of the observational stage

End point values	Observational Stage			
Subject group type	Reporting group			
Number of subjects analysed	13			
Units: Units on scale				
arithmetic mean (standard deviation)				
Sleep Disturbance: Baseline (n=13)	0.54 (± 0.660)			
Sleep Disturbance: Day 3 (n=12)	0.58 (± 0.669)			
Sleep Disturbance: Day 5 (n=12)	0.25 (± 0.452)			
Sleep Disturbance: Day 8 (n=12)	0.50 (± 0.798)			
Sleep Disturbance: Day 14 (n=11)	0.18 (± 0.405)			
Sleep Disturbance: Day 21 (n=10)	0.30 (± 0.675)			
Crying: Baseline (n=13)	0.77 (± 1.013)			
Crying: Day 3 (n=12)	0.25 (± 0.452)			
Crying: Day 5 (n=12)	0.08 (± 0.289)			
Crying: Day 8 (n=12)	0.08 (± 0.289)			
Crying: Day 14 (n=11)	0.09 (± 0.302)			
Crying: Day 21 (n=10)	0.10 (± 0.316)			
Illness Behavior: Baseline (n=13)	1.15 (± 0.899)			
Illness Behavior: Day 3 (n=12)	0.58 (± 0.793)			
Illness Behavior: Day 5 (n=12)	0.58 (± 0.793)			
Illness Behavior: Day 8 (n=12)	0.83 (± 1.030)			
Illness Behavior: Day 14 (n=11)	0.45 (± 0.820)			
Illness Behavior: Day 21 (n=10)	0.40 (± 0.843)			
Breathing Problems: Baseline (n=13)	0.31 (± 0.751)			
Breathing Problems: Day 3 (n=12)	0.42 (± 0.996)			
Breathing Problems: Day 5 (n=12)	0.17 (± 0.577)			
Breathing Problems: Day 8 (n=12)	0.50 (± 1.168)			
Breathing Problems: Day 14 (n=11)	0.27 (± 0.905)			
Breathing Problems: Day 21 (n=10)	0.30 (± 0.949)			
Nasal Secretions: Baseline (n=13)	1.23 (± 0.725)			
Nasal Secretions: Day 3 (n=12)	1.25 (± 0.754)			
Nasal Secretions: Day 5 (n=12)	0.92 (± 0.793)			
Nasal Secretions: Day 8 (n=12)	0.83 (± 0.835)			

Nasal Secretions: Day 14 (n=11)	0.45 (± 0.820)			
Nasal Secretions: Day 21 (n=10)	0.70 (± 0.949)			
Tachypnea: Baseline (n=13)	0.31 (± 0.751)			
Tachypnea: Day 3 (n=12)	0.17 (± 0.577)			
Tachypnea: Day 5 (n=12)	0.17 (± 0.577)			
Tachypnea: Day 8 (n=12)	0.17 (± 0.577)			
Tachypnea: Day 14 (n=11)	0.00 (± 0.000)			
Tachypnea: Day 21 (n=10)	0.00 (± 0.000)			
Tachycardia: Baseline (n=13)	0.31 (± 0.751)			
Tachycardia: Day 3 (n=12)	0.17 (± 0.577)			
Tachycardia: Day 5 (n=12)	0.00 (± 0.000)			
Tachycardia: Day 8 (n=12)	0.00 (± 0.000)			
Tachycardia: Day 14 (n=11)	0.00 (± 0.000)			
Tachycardia: Day 21 (n=10)	0.00 (± 0.000)			
Retractions: Baseline (n=13)	0.31 (± 0.751)			
Retractions: Day 3 (n=12)	0.17 (± 0.577)			
Retractions: Day 5 (n=12)	0.25 (± 0.866)			
Retractions: Day 8 (n=12)	0.00 (± 0.000)			
Retractions: Day 14 (n=11)	0.00 (± 0.000)			
Retractions: Day 21 (n=10)	0.00 (± 0.000)			
Breathing Sounds: Baseline (n=13)	1.08 (± 1.441)			
Breathing Sounds: Day 3 (n=12)	1.33 (± 1.435)			
Breathing Sounds: Day 5 (n=12)	1.42 (± 1.505)			
Breathing Sounds: Day 8 (n=12)	0.50 (± 1.168)			
Breathing Sounds: Day 14 (n=11)	0.55 (± 1.214)			
Breathing Sounds: Day 21 (n=10)	0.90 (± 1.197)			
Cough: Baseline (n=13)	2.08 (± 0.954)			
Cough: Day 3 (n=12)	1.50 (± 0.674)			
Cough: Day 5 (n=12)	1.25 (± 0.754)			
Cough: Day 8 (n=12)	1.08 (± 0.793)			
Cough: Day 14 (n=11)	0.45 (± 0.688)			
Cough: Day 21 (n=10)	0.40 (± 0.516)			
Feeding Problems: Baseline (n=13)	0.46 (± 0.877)			
Feeding Problems: Day 3 (n=12)	0.25 (± 0.452)			
Feeding Problems: Day 5 (n=12)	0.33 (± 0.651)			
Feeding Problems: Day 8 (n=12)	0.17 (± 0.389)			
Feeding Problems: Day 14 (n=11)	0.00 (± 0.000)			
Feeding Problems: Day 21 (n=10)	0.00 (± 0.000)			
Dehydration: Baseline (n=13)	0.00 (± 0.000)			
Dehydration: Day 3 (n=12)	0.25 (± 0.866)			
Dehydration: Day 5 (n=12)	0.00 (± 0.000)			
Dehydration: Day 8 (n=12)	0.00 (± 0.000)			
Dehydration: Day 14 (n=11)	0.18 (± 0.603)			
Dehydration: Day 21 (n=10)	0.00 (± 0.000)			

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

Up to 1 year 7 months

Adverse event reporting additional description:

The Safety set (SAF) included all subjects who received at least 1 dose of study drug, and were analyzed as treated, regardless of the randomized treatment group assigned. Where 'analysed as treated' is defined as: Placebo: if only placebo doses received, and JNJ-53718678: if at least one dose of the active study drug received.

Assessment type	Non-systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	24.0

Reporting groups

Reporting group title	Interventional Phase: JNJ-53718678

Reporting group description:

As per original dosing, subjects were randomized to receive JNJ-53718678 (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) once daily for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) twice daily for 7 days.

Reporting group title	Interventional Phase: Placebo

Reporting group description:

As per original dosing, subjects were randomized to receive JNJ-53718678 matching placebo (for Age Group 1 greater than or equal to [>=] 28 days and less than [<] 3 months: 5 milligram per kilogram [mg/kg]; for Age Group 2 (>=3 and <6 months): 6 mg/kg and for Age Group 3 (>=6 months): 9 mg/kg) qd for 7 days. After Protocol amendment 2, subjects were randomized to receive JNJ-53718678 (for Age Group 1: 2.5 mg/kg; for Age Group 2: 3 mg/kg and for Age Group 3: 4.5 mg/kg) bid for 7 days.

Serious adverse events	Interventional Phase: JNJ-53718678	Interventional Phase: Placebo	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 11 (9.09%)	1 / 11 (9.09%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events			
Infections and infestations			
Respiratory Syncytial Virus Bronchiolitis			
subjects affected / exposed	1 / 11 (9.09%)	1 / 11 (9.09%)	
occurrences causally related to treatment / all	0 / 1	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	
Tracheobronchitis			

subjects affected / exposed	1 / 11 (9.09%)	0 / 11 (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	Interventional Phase: JNJ-53718678	Interventional Phase: Placebo	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	2 / 11 (18.18%)	3 / 11 (27.27%)	
Cardiac disorders			
Tachycardia			
subjects affected / exposed	1 / 11 (9.09%)	0 / 11 (0.00%)	
occurrences (all)	2	0	
Skin and subcutaneous tissue disorders			
Dermatitis Atopic			
subjects affected / exposed	0 / 11 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
Dermatitis Diaper			
subjects affected / exposed	0 / 11 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
Infections and infestations			
Gastroenteritis			
subjects affected / exposed	0 / 11 (0.00%)	1 / 11 (9.09%)	
occurrences (all)	0	1	
Urinary Tract Infection			
subjects affected / exposed	1 / 11 (9.09%)	0 / 11 (0.00%)	
occurrences (all)	1	0	

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
06 November 2019	The overall reason is to update the protocol to add the missing part of the Visit Schedule for Rash Management in Pediatric Subjects.
05 June 2020	The overall reason for the amendment is to implement a risk mitigation plan for the newly recruited subjects in the interventional stage following identification of an exposure (Cmax)-related important potential risk of QT interval prolongation identified in the thorough QT (TQT) Study 53718678RSV1009 in healthy adult subjects.
13 July 2020	The overall reason is to implement recommendations from Health Authorities (HA).

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? Yes

Date	Interruption	Restart date
01 October 2020	The core eResearchTechnology (ERT), clinical servers were disconnected from the internet, but they were not powered off, thereby eliminating the risk of potential data loss during a system re-start. During the service interruption, data could be collected locally on an ECG or eCOA device as normal. No new sites could be initiated while the servers were offline, however, existing sites could enroll new subjects. Application reminders, notifications, or alerts continued to trigger. For ECG services, sites were reminded about storage capacity and the need to request new storage cards, if capacity were reached. In addition, a process was available for sites to submit urgent ECGs for a preliminary ERT cardiology review during the outage. Internet connectivity to ERT's servers was fully restored in a phased approach that started on 01 October 2020 and completed on 29 October 2020. By this time, all data on local devices could be transmitted to ERT's servers.	29 October 2020

Notes:

Limitations and caveats

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

The required number of subjects in the interventional phase was not reached, and hence, limiting the interpretability of the data.

Notes: