Clinical trial results:
A PHASE 1 OPEN-LABEL, MULTICENTER, SINGLE AND MULTIPLE ASCENDING DOSE STUDY TO EVALUATE PHARMACOKINETICS, SAFETY, AND TOLERABILITY OF LURASIDONE IN SUBJECTS 6 TO 17 YEARS OLD WITH SCHIZOPHRENIA SPECTRUM, BIPOLAR SPECTRUM, AUTISTIC SPECTRUM DISORDER, OR OTHER PSYCHIATRIC DISORDERS

Summary

EudraCT number	2013-001523-39
Trial protocol	Outside EU/EEA
Global end of trial date	06 May 2013

Results information

Result version number	v2 (current)
This version publication date	11 July 2016
First version publication date	30 May 2014
Version creation reason	• Correction of full data set Updating editorial discrepancies

Trial information

Trial identification

Sponsor protocol code	D1050300

Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT01620060
WHO universal trial number (UTN)	-

Notes:

Sponsors

Sponsor organisation name	Sunovion Pharmaceuticals Inc.
Sponsor organisation address	One Bridge Plaza North Suite 510, Fort Lee, NJ, United States, 07024
Public contact	Yu-Yuan Chiu, Sunovion Pharmaceuticals Inc., 001 201228-8178, Yu-Yuan.Chiu@Sunovion.com
Scientific contact	Yu-Yuan Chiu, Sunovion Pharmaceuticals Inc., 001 201228-8178, Yu-Yuan.Chiu@Sunovion.com

Notes:

Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	Yes
EMA paediatric investigation plan number(s)	EMEA-001230-PIP01-11
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No	Yes

1901/2006 apply to this trial?	

Notes:

Results analysis stage

Analysis stage	Final
Date of interim/final analysis	04 June 2013
Is this the analysis of the primary completion data?	Yes
Primary completion date	06 May 2013
Global end of trial reached?	Yes
Global end of trial date	06 May 2013
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

To characterize the pharmacokinetics (PK) and assess safety and tolerability of single and multiple oral doses of 20, 40, 80, 120, or 160 mg/day lurasidone hydrochloride (HCl) in subjects 6 to 17 years old with schizophrenia spectrum, bipolar spectrum, autistic spectrum disorder, or other psychiatric disorders

Protection of trial subjects:

None

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	19 June 2012
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	United States: 105
Worldwide total number of subjects	105
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)	49
Adolescents (12-17 years)	56
Adults (18-64 years)	0
From 65 to 84 years	0

85 years and over	0

Subject disposition

Recruitment

Recruitment details:

A Phase I, open-lable, mulitcenter,United States only study. Pediatric subjects with schizophernia spectrum, bipolar spectrum, autistic spectrum or other psychiatric disorders were enrolled. Study started enrollement on 19Jun2012.

Pre-assignment

Screening details:

All subjects received a single dose of lurasidone hydrochloride (HCl) followed by a 2-day washout period, then once-daily dosing of lurasidone hydrochloride for 7 days (20 mg through 120 mg lurasidone HCl cohort) or 9 days (160 mg lurasidone HCl cohort)

Period 1

Period 1 title	Overall Period Trial (overall period)
Is this the baseline period?	Yes
Allocation method	Not applicable
Blinding used	Not blinded

Arms

Are arms mutually exclusive?	Yes
Arm title	20 mg Lurasidone hydrochloride cohort

Arm description:

20 mg Lurasidone hydrochloride cohort

Arm type	Experimental
Investigational medicinal product name	Lurasidone hydrochloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:

once daily

Arm title	40 mg cohort Lurasidone hydrochlorid

Arm description:

40 mg Lurasidone hydrochloride cohort

Arm type	Experimental
Investigational medicinal product name	Lurasidone hydrochloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:

once daily

Arm title	80 mg Lurasidone hydrochloride cohort

Arm description:

80 mg Lurasidone hydrochloride cohort

Arm type	Experimental

Investigational medicinal product name	Lurasidone hydrochloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:
once daily

Arm title	120 mg Lurasidone hydrochloride cohort

Arm description:
120 mg Lurasidone hydrochloride cohort

Arm type	Experimental
Investigational medicinal product name	Lurasidone hydrochloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:
once daily

Arm title	160 mg Lurasidone hydrochloride cohort

Arm description:
160 mg Lurasidone hydrochloride cohort

Arm type	Experimental
Investigational medicinal product name	Lurasidone hydrochloride
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Tablet
Routes of administration	Oral use

Dosage and administration details:
once daily

Number of subjects in period 1	20 mg Lurasidone hydrochloride cohort	40 mg cohort Lurasidone hydrochlorid	80 mg Lurasidone hydrochloride cohort
Started	20	25	19
Completed	19	21	18
Not completed	1	4	1
Consent withdrawn by subject	-	-	-
Did not comply with Study procedures	1	-	-
Adverse event, non-fatal	-	3	1
family emergency	-	-	-
Per Sponsor Decision	-	-	-
Protocol deviation	-	1	-

Number of subjects in period 1	120 mg Lurasidone hydrochloride cohort	160 mg Lurasidone hydrochloride cohort
Started	25	16

Completed	18	14
Not completed	7	2
Consent withdrawn by subject	-	1
Did not comply with Study procedures	-	-
Adverse event, non-fatal	4	1
family emergency	1	-
Per Sponsor Decision	2	-
Protocol deviation	-	-

Baseline characteristics

Reporting groups	
Reporting group title	20 mg Lurasidone hydrochloride cohort
Reporting group description: 20 mg Lurasidone hydrochloride cohort	
Reporting group title	40 mg cohort Lurasidone hydrochlorid
Reporting group description: 40 mg Lurasidone hydrochloride cohort	
Reporting group title	80 mg Lurasidone hydrochloride cohort
Reporting group description: 80 mg Lurasidone hydrochloride cohort	
Reporting group title	120 mg Lurasidone hydrochloride cohort
Reporting group description: 120 mg Lurasidone hydrochloride cohort	
Reporting group title	160 mg Lurasidone hydrochloride cohort
Reporting group description: 160 mg Lurasidone hydrochloride cohort	

Reporting group values	20 mg Lurasidone hydrochloride cohort	40 mg cohort Lurasidone hydrochlorid	80 mg Lurasidone hydrochloride cohort
Number of subjects	20	25	19
Age categorical Units: Subjects			
6-9 years old	5	5	4
10-12 years old	6	7	5
13-15 years old	5	7	5
16-17 years old	4	6	5
Gender categorical Units: Subjects			
Female	8	10	6
Male	12	15	13

Reporting group values	120 mg Lurasidone hydrochloride cohort	160 mg Lurasidone hydrochloride cohort	Total
Number of subjects	25	16	105
Age categorical Units: Subjects			
6-9 years old	6	0	20
10-12 years old	5	6	29
13-15 years old	8	6	31
16-17 years old	6	4	25
Gender categorical Units: Subjects			
Female	8	5	37
Male	17	11	68

End points

End points reporting groups	
Reporting group title	20 mg Lurasidone hydrochloride cohort
Reporting group description: 20 mg Lurasidone hydrochloride cohort	
Reporting group title	40 mg cohort Lurasidone hydrochlorid
Reporting group description: 40 mg Lurasidone hydrochloride cohort	
Reporting group title	80 mg Lurasidone hydrochloride cohort
Reporting group description: 80 mg Lurasidone hydrochloride cohort	
Reporting group title	120 mg Lurasidone hydrochloride cohort
Reporting group description: 120 mg Lurasidone hydrochloride cohort	
Reporting group title	160 mg Lurasidone hydrochloride cohort
Reporting group description: 160 mg Lurasidone hydrochloride cohort	

Primary: Lurasidone Hydrochloride PK profile	
End point title	Lurasidone Hydrochloride PK profile
End point description: Primary PK parameters: Cmax, AUClast, and AUC0-∞ (Day 1), and Cmax and AUC0-24 (Day 10 or Day 12)	
End point type	Primary
End point timeframe: Day 1 through Day 12	

End point values	20 mg Lurasidone hydrochloride cohort	40 mg cohort Lurasidone hydrochlorid	80 mg Lurasidone hydrochloride cohort	120 mg Lurasidone hydrochloride cohort
Subject group type	Reporting group	Reporting group	Reporting group	Reporting group
Number of subjects analysed	20	25	19	25
Units: ng/ml				
arithmetic mean (standard deviation)				
Cmax ng/ml (Day 1)	24.4 (± 14.1)	38.3 (± 22.4)	68.2 (± 37.5)	0 (± 0)
Cmax ng/ml (Day 10 or Day 12)	30 (± 18)	36.2 (± 17.5)	80 (± 59.6)	94.2 (± 46.6)
AUC0-24 ng.h/ml (Day 10 or Day 12)	115 (± 72.2)	154 (± 67.4)	387 (± 194)	494 (± 271)
AUClast ng.h/ml (Day1)	78 (± 44.9)	140 (± 65.4)	300 (± 140)	0 (± 0)
AUC0-∞ ng.h/ml (Day 1)	83.8 (± 48.3)	153 (± 69.8)	328 (± 163)	0 (± 0)

End point values	160 mg Lurasidone hydrochloride			

	cohort			
Subject group type	Reporting group			
Number of subjects analysed	16			
Units: ng/ml				
arithmetic mean (standard deviation)				
Cmax ng/ml (Day 1)	0 (± 0)			
Cmax ng/ml (Day 10 or Day 12)	99.7 (± 44.3)			
AUC0-24 ng.h/ml (Day 10 or Day 12)	590 (± 227)			
AUClast ng.h/ml (Day1)	0 (± 0)			
AUC0-∞ ng.h/ml (Day 1)	0 (± 0)			

Statistical analyses

Statistical analysis title	Discriptive Summary
Comparison groups	20 mg Lurasidone hydrochloride cohort v 40 mg cohort Lurasidone hydrochlorid v 80 mg Lurasidone hydrochloride cohort v 120 mg Lurasidone hydrochloride cohort v 160 mg Lurasidone hydrochloride cohort
Number of subjects included in analysis	105
Analysis specification	Pre-specified
Analysis type	other
P-value	= 1
Method	ANCOVA
Parameter estimate	Discriptive Summary

Adverse events

Adverse events information	
Timeframe for reporting adverse events: June 19, 2012 through May 6, 2013	
Assessment type	Systematic
Dictionary used	
Dictionary name	MedDRA
Dictionary version	15.0
Reporting groups	
Reporting group title	Lurasidone 20 mg oral tablets
Reporting group description: Lurasidone 20 mg oral tablets	
Reporting group title	Lurasidone 40 mg oral tablets
Reporting group description: Lurasidone 40 mg oral tablets	
Reporting group title	Lurasidone 80 mg oral tablets
Reporting group description: Lurasidone 80 mg oral tablets	
Reporting group title	Lurasidone 120 mg oral tablets
Reporting group description: Lurasidone 120 mg oral tablets	
Reporting group title	Lurasidone 160 mg oral tablets
Reporting group description: Lurasidone 160 mg oral tablets	

Serious adverse events	Lurasidone 20 mg oral tablets	Lurasidone 40 mg oral tablets	Lurasidone 80 mg oral tablets
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 20 (0.00%)	0 / 25 (0.00%)	2 / 19 (10.53%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events	0	0	0
Nervous system disorders			
Parkinsonism			
subjects affected / exposed	0 / 20 (0.00%)	0 / 25 (0.00%)	1 / 19 (5.26%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0
Dystonia			
subjects affected / exposed	0 / 20 (0.00%)	0 / 25 (0.00%)	1 / 19 (5.26%)
occurrences causally related to treatment / all	0 / 0	0 / 0	0 / 1
deaths causally related to treatment / all	0 / 0	0 / 0	0 / 0

Serious adverse events	Lurasidone 120 mg oral tablets	Lurasidone 160 mg oral tablets	
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 25 (0.00%)	0 / 16 (0.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Nervous system disorders			
Parkinsonism			
subjects affected / exposed	0 / 25 (0.00%)	0 / 16 (0.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Dystonia			
subjects affected / exposed	0 / 25 (0.00%)	0 / 16 (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: 3 %

Non-serious adverse events	Lurasidone 20 mg oral tablets	Lurasidone 40 mg oral tablets	Lurasidone 80 mg oral tablets
Total subjects affected by non-serious adverse events			
subjects affected / exposed	4 / 20 (20.00%)	17 / 25 (68.00%)	15 / 19 (78.95%)
Nervous system disorders			
Somnolence			
subjects affected / exposed	0 / 20 (0.00%)	11 / 25 (44.00%)	7 / 19 (36.84%)
occurrences (all)	0	27	17
Sedation			
subjects affected / exposed	0 / 20 (0.00%)	3 / 25 (12.00%)	5 / 19 (26.32%)
occurrences (all)	0	5	9
Dystonia			
subjects affected / exposed	0 / 20 (0.00%)	0 / 25 (0.00%)	0 / 19 (0.00%)
occurrences (all)	0	0	0
Gastrointestinal disorders			
Nausea			
subjects affected / exposed	1 / 20 (5.00%)	3 / 25 (12.00%)	6 / 19 (31.58%)
occurrences (all)	1	4	7
Vomiting			

subjects affected / exposed	0 / 20 (0.00%)	4 / 25 (16.00%)	4 / 19 (21.05%)
occurrences (all)	0	4	5
Abdominal pain upper			
subjects affected / exposed	1 / 20 (5.00%)	0 / 25 (0.00%)	1 / 19 (5.26%)
occurrences (all)	1	0	1
Psychiatric disorders			
Anxiety			
subjects affected / exposed	0 / 20 (0.00%)	0 / 25 (0.00%)	1 / 19 (5.26%)
occurrences (all)	0	0	1

Non-serious adverse events	Lurasidone 120 mg oral tablets	Lurasidone 160 mg oral tablets	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	24 / 25 (96.00%)	16 / 16 (100.00%)	
Nervous system disorders			
Somnolence			
subjects affected / exposed	16 / 25 (64.00%)	10 / 16 (62.50%)	
occurrences (all)	50	10	
Sedation			
subjects affected / exposed	7 / 25 (28.00%)	4 / 16 (25.00%)	
occurrences (all)	13	8	
Dystonia			
subjects affected / exposed	3 / 25 (12.00%)	2 / 16 (12.50%)	
occurrences (all)	4	2	
Gastrointestinal disorders			
Nausea			
subjects affected / exposed	2 / 25 (8.00%)	6 / 16 (37.50%)	
occurrences (all)	2	6	
Vomiting			
subjects affected / exposed	5 / 25 (20.00%)	3 / 16 (18.75%)	
occurrences (all)	6	3	
Abdominal pain upper			
subjects affected / exposed	4 / 25 (16.00%)	0 / 16 (0.00%)	
occurrences (all)	4	0	
Psychiatric disorders			
Anxiety			
subjects affected / exposed	1 / 25 (4.00%)	4 / 16 (25.00%)	
occurrences (all)	1	4	

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

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

None

Notes: