Clinical trial results:
Diagnostic efficacy and prognostic method [18F] DOPA-PET/CT in study of neuroblastoma: comparison with 123I-MIBG scintigraphy

Summary

EudraCT number	2012-005398-30
Trial protocol	IT
Global end of trial date	31 January 2016

Results information

Result version number	v1 (current)
This version publication date	01 August 2024
First version publication date	01 August 2024
Summary attachment (see zip file)	Diagnosis, Treatment Response, and Prognosis: The Role of 18F-DOPA PET/CT in Children Affected by Neuroblastoma in Comparison with 123I-mIBG Scan: The First Prospective Study (DOPA JNM.pdf)

Trial information

Trial identification

Sponsor protocol code	dopa

Additional study identifiers

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

Notes:

Sponsors

Sponsor organisation name	E.O. Ospedali Galliera
Sponsor organisation address	Mura delle Cappuccine 14, Genoa, Italy, 16128
Public contact	S.S. Gestione attività di ricerca e Gran Office E.O. Ospedali Galliera, S.S. Gestione attività di ricerca e Gran Office E.O. Ospedali Galliera, 0039 0105634541, arnoldo.piccardo@galliera.it
Scientific contact	S.S. Gestione attività di ricerca e Gran Office E.O. Ospedali Galliera, S.S. Gestione attività di ricerca e Gran Office E.O. Ospedali Galliera, 0039 0105634541, arnoldo.piccardo@galliera.it

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	28 February 2018
Is this the analysis of the primary completion data?	Yes
Primary completion date	31 January 2016
Global end of trial reached?	Yes
Global end of trial date	31 January 2016
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

check the diagnostic accuracy of 18F-DOPA-PET/TC compared with scintigraphy with 123I-MIBG during the staging of disease in patients with NB

Protection of trial subjects:

A median clinical and follow-up of 29.3 mo (range, 19–53 mo) was available for each patient.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 February 2013
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

Population of trial subjects

Subjects enrolled per country

Country: Number of subjects enrolled	Italy: 18
Worldwide total number of subjects	18
EEA total number of subjects	18

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)	18
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:

neuroblastoma (NB) patients

Pre-assignment

Screening details:

-age > 12 months <18 years
- patients affected by NB at onset with a high probability of returning to stage 3 and 4 of the disease based on ultrasound or CT images. Stage 2 with N-MYC amplification - histological diagnosis of NB may also be included
- no previous lines of chemotherapy with the exception of steroid treatment
-informed consent

Period 1

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

Arms

Arm title	Neuroblastoma patients

Arm description:

16 high-risk and 2 intermediate-risk patients

Arm type	Experimental
Investigational medicinal product name	6-[18F]fluoro-L-dopa
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Concentrate for solution for injection
Routes of administration	Intramuscular and intravenous use

Dosage and administration details:

(4 MBq/Kg) never < 80 MBq

Number of subjects in period 1	Neuroblastoma patients
Started	18
Completed	18

Baseline characteristics

Reporting groups

Reporting group title	Neuroblastoma patients

Reporting group description:

16 high-risk and 2 intermediate-risk patients

Reporting group values	Neuroblastoma patients	Total	
Number of subjects	18	18	
Age categorical			
children 2- 11 years			
Units: Subjects			
children (2 - 11 years)	18	18	
Gender categorical Units: Subjects			
Female	6	6	
Male	12	12	

Subject analysis sets

Subject analysis set title	Neuroblastoma NB patients
Subject analysis set type	Full analysis

Subject analysis set description:

The primary aim of this study was to evaluate the diagnosticrole of 18F-DOPA PET/CT at the time of first diagnosis in childrenwith neuroblastoma.

Reporting group values	Neuroblastoma NB patients		
Number of subjects	18		
Age categorical			
children 2- 11 years			
Units: Subjects			
children (2 - 11 years)	18		
Gender categorical Units: Subjects			
Female	12		
Male	6		

End points

End points reporting groups

Reporting group title	Neuroblastoma patients

Reporting group description:

16 high-risk and 2 intermediate-risk patients

Subject analysis set title	Neuroblastoma NB patients
Subject analysis set type	Full analysis

Subject analysis set description:

The primary aim of this study was to evaluate the diagnosticrole of 18F-DOPA PET/CT at the time of first diagnosis in childrenwith neuroblastoma.

Primary: the diagnostic accuracy of 18F-DOPA-PET/CT compared to 123I-MIBG scintigraphy

End point title	the diagnostic accuracy of 18F-DOPA-PET/CT compared to 123I-MIBG scintigraphy[1]

End point description:

The primary aim of this study was to evaluate the diagnostic role of 18F-DOPA PET/CT at the time of first diagnosis in children with neuroblastoma. We also investigated the ability of this procedure to assess response to chemotherapy. Lastly, we evaluated the prognostic role of 18F-DOPA PET/CT in high-risk neuroblastoma patients on diagnosis and after induction chemotherapy by testing the relationship between WBMB, progression-free survival (PFS), and overall survival (OS)

End point type	Primary

End point timeframe:

48 month

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: Diagnostic accuracy was considered as the primary endpoint ratio between [true positives (VP) + true negatives (VN)] / [total of subjects (N)].
Each subject will be subjected to both reference tests (experimental and standard), for the calculation of the sample was used the McNemar statistical test,
A power of 80% was calculated with a total (minimum) sample of 40 subjects, it is necessary to detect a difference of 30% in terms of the discordant proportions (p21 and p12 of the aforemention

End point values	Neuroblastoma patients	Neuroblastoma NB patients		
Subject group type	Reporting group	Subject analysis set		
Number of subjects analysed	18[2]	18[3]		
Units: MBq/kg megabecquerel(s)/kilogram	18	18		

Notes:

[2] - ..

[3] - ..

Statistical analyses

No statistical analyses for this end point

Secondary: The impact on prognosis and clinical management will be a secondary end-point of our evaluation.

End point title	The impact on prognosis and clinical management will be a secondary end-point of our evaluation.

End point description:

Lastly, we evaluated the prognostic role of 18F-DOPA PET/CT in high-risk neuroblastoma patients on diagnosis and after induction chemotherapy by testing the relationship between WBMB, progression-free

survival (PFS), and overall survival (OS)

End point type	Secondary

End point timeframe:

48 month

End point values	Neuroblastoma patients	Neuroblastoma NB patients		
Subject group type	Reporting group	Subject analysis set		
Number of subjects analysed	18	18		
Units: MBq/kg megabecquerel(s)/kilogram	18	18		

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information[1]

Timeframe for reporting adverse events:

The adverse event will be notified to the Galliera Coordinating Center within 24 hours of the principal investigator becoming aware of it and subsequent relevant information will be communicated within eight days of the first report

Adverse event reporting additional description:

no adverse event reported

Assessment type	Systematic

Dictionary used

Dictionary name	MedDRA
Dictionary version	16

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

Notes:

[1] - There are no non-serious adverse events recorded for these results. It is expected that there will be at least one non-serious adverse event reported.
Justification: The adverse event will be notified to the Galliera Coordinating Center within 24 hours of the principal investigator becoming aware of it and subsequent relevant information will be communicated within eight days of the first report

More information

Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

Date	Amendment
01 October 2015	- update of the protocol (statistical part) - Closure of three satellite centers due to lack of enrollment

Notes:

Interruptions (globally)

Were there any global interruptions to the trial? No

Limitations and caveats

None reported