



Clinical trial results:

A Prospective, Open-label, Interventional Phase IIIb Clinical Trial to Investigate the Effectiveness of an Additional Course of Alemtuzumab in Relapsing Remitting Multiple Sclerosis Patients After 2 Courses of Alemtuzumab

Summary

EudraCT number	2016-000464-42
Trial protocol	DE
Global end of trial date	28 May 2019

Results information

Result version number	v1 (current)
This version publication date	11 June 2020
First version publication date	11 June 2020

Trial information

Trial identification

Sponsor protocol code	ALEMLL08091
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Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	-
WHO universal trial number (UTN)	U1111-1185-1377
Other trial identifiers	Sponsor abbreviated name: LemCourse

Notes:

Sponsors

Sponsor organisation name	Genzyme Corporation
Sponsor organisation address	500 Kendall Street, Cambridge, MA, United States, 02142
Public contact	Trial Transparency Team, Sanofi aventis recherche & développement, Contact-US@sanofi.com
Scientific contact	Trial Transparency Team, Sanofi aventis recherche & développement, Contact-US@sanofi.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 August 2019
Is this the analysis of the primary completion data?	No
Global end of trial reached?	Yes
Global end of trial date	28 May 2019
Was the trial ended prematurely?	No

Notes:

General information about the trial

Main objective of the trial:

Evaluation of effectiveness of an additional alemtuzumab course in subjects with relapsing remitting multiple sclerosis (RRMS) with disease activity after 2 courses with respect to the annualised relapse rate (ARR).

Protection of trial subjects:

Subjects were fully informed of all pertinent aspects of the clinical trial as well as the possibility to discontinue at any time in language and terms appropriate for the subject and considering the local culture. During the course of the trial, subjects were provided with individual subject cards indicating the nature of the trial in which the subject is participating, contact details and any information needed in the event of a medical emergency. Collected personal data and human biological samples were processed in compliance with the Sanofi-Aventis Group Personal Data Protection Charter ensuring that the Group abides by the laws governing personal data protection in force in all countries in which it operates.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	04 October 2016
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	Germany: 56
Worldwide total number of subjects	56
EEA total number of subjects	56

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)	56
From 65 to 84 years	0
85 years and over	0

Subject disposition

Recruitment

Recruitment details:

The study was conducted at multiple sites in Germany between 04-October-2016 to 28-May-2019.

Pre-assignment

Screening details:

A total of 56 subjects were included in the study.

Period 1

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

Arms

Arm title	Alemtuzumab
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Arm description:

Subjects who had previously (before enrollment in this study) received 2 courses of alemtuzumab, received intravenous (IV) infusion of alemtuzumab in this study at a dose of 12 milligram per day (mg/day) for 3 consecutive days, at least 12 months after prior treatment course.

Arm type	Experimental
Investigational medicinal product name	Alemtuzumab
Investigational medicinal product code	Lemtrada
Other name	
Pharmaceutical forms	Concentrate for solution for infusion
Routes of administration	Intravenous use

Dosage and administration details:

IV infusion of alemtuzumab at a dose of 12 mg/day for 3 consecutive days (total dose-36 mg) at least 12 months after prior treatment course in a supervised medical setting.

Number of subjects in period 1	Alemtuzumab
Started	56
Completed	54
Not completed	2
Adverse Event (AE)	1
Subject did not meet inclusion/exclusion criteria	1

Baseline characteristics

Reporting groups

Reporting group title	Alemtuzumab
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Reporting group description:

Subjects who had previously (before enrollment in this study) received 2 courses of alemtuzumab, received intravenous (IV) infusion of alemtuzumab in this study at a dose of 12 milligram per day (mg/day) for 3 consecutive days, at least 12 months after prior treatment course.

Reporting group values	Alemtuzumab	Total	
Number of subjects	56	56	
Age categorical Units: Subjects			
Age continuous Units: years arithmetic mean standard deviation	35.8 ± 9.2	-	
Gender categorical Units: Subjects			
Female	44	44	
Male	12	12	

End points

End points reporting groups

Reporting group title	Alemtuzumab
Reporting group description: Subjects who had previously (before enrollment in this study) received 2 courses of alemtuzumab, received intravenous (IV) infusion of alemtuzumab in this study at a dose of 12 milligram per day (mg/day) for 3 consecutive days, at least 12 months after prior treatment course.	
Subject analysis set title	Alemtuzumab (1-year period prior to 3rd course of treatment)
Subject analysis set type	Modified intention-to-treat
Subject analysis set description: Subjects who, after receiving 2nd course of treatment with alemtuzumab, were in a year-long period of observation before administration of 3rd treatment course with alemtuzumab.	
Subject analysis set title	Alemtuzumab (1-year period after 3rd course of treatment)
Subject analysis set type	Modified intention-to-treat
Subject analysis set description: Subjects who were observed for up to one year after administration of 1st infusion of the 3rd treatment course with alemtuzumab.	

Primary: Annualized Number of Relapses During the 1-year Period of Observation Before and After Third Treatment Course With Alemtuzumab

End point title	Annualized Number of Relapses During the 1-year Period of Observation Before and After Third Treatment Course With Alemtuzumab
End point description: Relapse was defined as new neurological or worsening of previous neurological symptoms with an objective change on neurological examination. These symptoms were attributable to multiple sclerosis, lasting at least 48 hours, be present at normal body temperature (i.e., no infection, excessive exercise, or excessively high ambient temperature), and be preceded by at least 30 days of clinical stability. Analysis was performed on modified intent-to-treat (mITT) population which included all subjects who had received at least one infusion of the 3rd treatment course with alemtuzumab with non-missing information regarding duration of follow-up after 1st infusion of the 3rd treatment course with alemtuzumab and number of relapses during this follow-up.	
End point type	Primary
End point timeframe: Up to 12 months before and after 3rd treatment course of alemtuzumab	

End point values	Alemtuzumab (1-year period prior to 3rd course of treatment)	Alemtuzumab (1-year period after 3rd course of treatment)		
Subject group type	Subject analysis set	Subject analysis set		
Number of subjects analysed	56	56		
Units: Normalised number of relapses per year				
arithmetic mean (standard deviation)	1.34 (± 0.824)	0.58 (± 0.924)		

Statistical analyses

Statistical analysis title	Rate ratio
Statistical analysis description:	
System sums group Ns for "N in analysis", actual N=56. Repeated measures negative binomial regression model compared relapses in year after 3rd treatment course with relapses in year prior with independent factor gender, covariate age and logarithm of duration of corresponding follow-up time as offset variable. Estimates were provided for ARR in the 2 periods and rate ratio (after/before) of ARRs. Null hypothesis H0:RR ≥1 was tested versus H1:RR <1 at 0.025 level.	
Comparison groups	Alemtuzumab (1-year period prior to 3rd course of treatment) v Alemtuzumab (1-year period after 3rd course of treatment)
Number of subjects included in analysis	112
Analysis specification	Pre-specified
Analysis type	other
P-value	< 0.0001
Method	binomial regression
Parameter estimate	Rate ratio
Point estimate	0.42
Confidence interval	
level	95 %
sides	2-sided
lower limit	0.29
upper limit	0.6
Variability estimate	Standard error of the mean
Dispersion value	0.186

Primary: Number of Subjects With Sustained Accumulation of Disability (SAD)

End point title	Number of Subjects With Sustained Accumulation of Disability (SAD) ^[1]
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End point description:

SAD was defined as an increase of at least 1 point on the expanded disability status scale (EDSS) from baseline EDSS score ≥1.0 (1.5 point increase for subjects with baseline EDSS of 0). An EDSS was an ordinal clinical rating scale which ranges from 0 (normal neurologic examination) to 10 (death due to multiple sclerosis) in half-point increments, where lower score indicated less severity. Analysis was performed on mITT population. Here, "number of subjects analysed" signifies subjects evaluable for this endpoint.

End point type	Primary
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End point timeframe:

12 months post 3rd treatment course of alemtuzumab

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: The endpoint is descriptive in nature, no statistical analysis is provided.

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	55			
Units: subjects				
number (not applicable)				
Yes	7			
No	48			

Statistical analyses

No statistical analyses for this end point

Secondary: Percentage of Subjects Without Relapse at Month 12

End point title	Percentage of Subjects Without Relapse at Month 12
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End point description:

Relapse was defined as new neurological or worsening of previous neurological symptoms with an objective change on neurological examination. These symptoms were attributable to multiple sclerosis, lasting at least 48 hours, be present at normal body temperature (i.e., no infection, excessive exercise, or excessively high ambient temperature), and be preceded by at least 30 days of clinical stability. Analysis was performed on mITT population.

End point type	Secondary
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End point timeframe:

Month 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: percentage of subjects				
number (not applicable)	66.1			

Statistical analyses

No statistical analyses for this end point

Secondary: Change From Baseline in Expanded Disability Status Scale Scores at Months 6 and 12

End point title	Change From Baseline in Expanded Disability Status Scale Scores at Months 6 and 12
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End point description:

The EDSS was used as the standard for assessing disability in subjects with multiple sclerosis. It was an ordinal clinical rating scale which ranges from 0 (normal neurologic examination) to 10 (death due to multiple sclerosis) in half-point increments where lower score indicated less severity. EDSS steps 1.0 to 4.5 referred to subject with multiple sclerosis who were fully ambulatory, while EDSS steps 5.0 to 9.5 were defined by the impairment to ambulation. Analysis was performed on mITT population. Here, "number of subjects analysed" signifies subjects evaluable for this endpoint.

End point type	Secondary
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End point timeframe:

Baseline, Months 6 and 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	55			
Units: score on a scale				
arithmetic mean (standard deviation)				
Month 6	-0.2 (± 0.73)			
Month 12	-0.1 (± 0.86)			

Statistical analyses

No statistical analyses for this end point

Secondary: Brain Magnetic Resonance Imaging (MRI) Assessment: Percentage of Subjects With Active Lesions

End point title	Brain Magnetic Resonance Imaging (MRI) Assessment: Percentage of Subjects With Active Lesions
End point description:	
The MRI was used to evaluate the efficacy of drug modifying therapies (DMTs) by measuring the number of unique active lesion (UALs): Gadolinium-enhancing (Gd)(+)-lesions seen in T1-weighted images plus unenhanced new and enlarging T2-hyperintense lesions, identified on relatively infrequent sequential imaging. Change of number of Gd(+)-lesions and number of new and enlarging lesions found on T2-weighted images were evaluated at Month 12 as compared to Baseline. Analysis was performed on mITT population.	
End point type	Secondary
End point timeframe:	
Baseline, Month 12	

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: percentage of subjects				
number (not applicable)				
New Gd lesions: Baseline	35.7			
New Gd lesions: Month 12	12.5			
New T2 lesions: Baseline	37.5			
New T2 lesions: Month 12	14.3			
New lesions (Gd or T2): Baseline	53.6			
New lesions (Gd or T2): Month 12	19.6			
Any enlarging T2 lesion: Month 12	8.9			

Statistical analyses

Secondary: Brain Magnetic Resonance Imaging Assessment: Change from Baseline in Number of Active Gadolinium-enhancing and T2 Lesions at Month 12

End point title	Brain Magnetic Resonance Imaging Assessment: Change from Baseline in Number of Active Gadolinium-enhancing and T2 Lesions at Month 12
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End point description:

The MRI was used to evaluate the efficacy of DMTs by measuring the number of UALs: Gd(+)-lesions seen in T1-weighted images plus unenhanced new and enlarging T2-hyperintense lesions, identified on relatively infrequent sequential imaging. Change of number of Gd(+)-lesions and number of new and enlarging lesions found on T2-weighted images were evaluated at Month 12 as compared to Baseline. Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified category.

End point type	Secondary
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End point timeframe:

Baseline, Month 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: lesions				
arithmetic mean (standard deviation)				
New Gd lesions: (n=53)	-0.77 (± 3.017)			
New T2 lesions: (n=54)	-2.37 (± 8.295)			
New lesions (Gd+T2): (n=53)	-3.19 (± 9.058)			

Statistical analyses

No statistical analyses for this end point

Secondary: Change From Baseline in Cognition Measured by Symbol Digit Modalities Test (SDMT) Scores at Months 6 and 12

End point title	Change From Baseline in Cognition Measured by Symbol Digit Modalities Test (SDMT) Scores at Months 6 and 12
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End point description:

SDMT was developed to identify subjects with neurological impairment and had demonstrated remarkable sensitivity in detecting changes in cognitive functioning over time and in response to treatment. The SDMT involves a simple substitution task. Using a reference key, the subject had 90 seconds to identify nine different symbols corresponding to the numbers 1 through 9, paired specific numbers with given geometric figures, and practiced writing the correct number under the corresponding symbol. The total number of symbols to recognise was 120 corresponding to a maximal score of 120, where the lower score indicated more cognitive impairment. Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified time point.

End point type	Secondary
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End point timeframe:

Baseline, Months 6 and 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: scores on a scale				
arithmetic mean (standard deviation)				
Month 6 (n=54)	1 (± 14.6)			
Month 12 (n=53)	3 (± 17.3)			

Statistical analyses

No statistical analyses for this end point

Secondary: Change From Baseline in Patient Reported Outcome Indices for Multiple Sclerosis (PRIMUS) Questionnaire at Months 6 and 12

End point title	Change From Baseline in Patient Reported Outcome Indices for Multiple Sclerosis (PRIMUS) Questionnaire at Months 6 and 12
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End point description:

The PRIMUS was a disease specific subject-reported outcome questionnaire that measured the quality of life (QoL) of subjects suffering from multiple sclerosis. The PRIMUS scores were evaluated by assessment of QoL, activity limitations, and symptoms. The questionnaire contained 22 questions on QoL, 15 on activity limitations and 8 on symptoms. A rank was associated to each answer: symptom questions: Yes=1; No=0, activity questions: could without difficulty=0; could with difficulty=1; could not=2, and QoL questions: Not correct=0; Correct=1. The ranks were then summed by specific domains (QoL, activity limitations, and symptoms) and overall. These sums were normalised on the maximum possible scores and presented as percentage (%), where higher score on any of these scales indicated lower quality of life due to the disease. Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified time point.

End point type	Secondary
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End point timeframe:

Baseline, Months 6 and 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: scores on a scale				
arithmetic mean (standard deviation)				
Symptom Score: Month 6 (n=55)	-2.8 (± 16.62)			
Symptom Score: Month 12 (n=53)	-1.5 (± 17.84)			
Activity Score: Month 6 (n=55)	-1.0 (± 12.89)			
Activity Score: Month 12 (n=53)	0.3 (± 13.21)			
Quality-of-Life Score: Month 6 (n=55)	-5.0 (± 20.00)			
Quality-of-Life Score: Month 12 (n=53)	-3.3 (± 17.95)			
Overall Score: Month 6 (n=55)	-2.7 (± 12.22)			
Overall Score: Month 12 (n=53)	-1.3 (± 12.26)			

Statistical analyses

No statistical analyses for this end point

Secondary: Changes From Baseline in Euro Quality of life (EQ-5D-3L) at Months 6 and 12- Index Scores

End point title	Changes From Baseline in Euro Quality of life (EQ-5D-3L) at Months 6 and 12- Index Scores
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End point description:

An EQ-5D was a standardised measure to provide a simple, generic measure of health for clinical and economic appraisal. EQ-5D 3L consisted of 2 pages: a descriptive system and a visual analogue scale (EQ VAS). The descriptive system had 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each had 3 levels of severity (no problems, some problems, and extreme problems). The 5-dimensional 3-level systems were converted into a single index utility score between 0 to 1, where higher score indicates a better health state. Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified time point.

End point type	Secondary
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End point timeframe:

Baseline, Months 6 and 12

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: score on a scale				
arithmetic mean (standard deviation)				
At Month 6 (n=54)	0.040 (± 0.1514)			
At Month 12 (n=52)	0.040 (± 0.1568)			

Statistical analyses

No statistical analyses for this end point

Secondary: Changes From Baseline in Euro Quality of life at Months 6 and 12- Visual Analogue Scale Scores

End point title	Changes From Baseline in Euro Quality of life at Months 6 and 12- Visual Analogue Scale Scores
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End point description:

EQ-5D was a standardised measure of health status to provide a simple, generic measure of health for clinical and economic appraisal. EQ-5D-3L-VAS recorded the subject's self-rated health on a vertical VAS that allowed the subjects to indicate their health state that could range from 0 (worst imaginable) to 100 (best imaginable). Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified time point.

End point type	Secondary
End point timeframe:	
Baseline, Months 6 and 12	

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: score on a scale				
arithmetic mean (standard deviation)				
At Month 6 (n=55)	1 (± 15.8)			
At Month 12 (n=53)	3 (± 17.8)			

Statistical analyses

No statistical analyses for this end point

Secondary: Changes From Baseline in Work Productivity and Activity Impairment Questionnaire: General Health (WPAI-GH) Scores at Months 6 and 12

End point title	Changes From Baseline in Work Productivity and Activity Impairment Questionnaire: General Health (WPAI-GH) Scores at Months 6 and 12
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End point description:

WPAI-GH consisted of 6 questions (Q): 1=currently employed; 2=hours missed due to health problems; 3=hours missed because of other reasons; 4=hours actually worked; 5=degree health affected productivity while working (using 0 to 10 VAS); 6=degree health affected productivity in regular unpaid activities (VAS). 4 outcomes were generated, expressed in % by multiplying scores by 100: 1) Work time % missed due to health=Q2/(Q2 + Q4) for currently employed; 2) Impairment % while working due to health=Q5/10 for currently employed and actually worked in past 7 days; 3) Overall work impairment % due to health Q2/(Q2+Q4)+([1-Q2/(Q2+Q4)]*[Q5/10]) for currently employed; 4) Activity impairment % due to health Q6/10 for all respondents. Subjects who missed work/did not work in past 7 days, overall work impairment % due to health was equal to work time % missed due to health. Analysis was performed on mITT population. Here, "n" signifies number of subjects analysed for each specified time point.

End point type	Secondary
End point timeframe:	
Baseline, Months 6 and 12	

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: scores on a scale				
arithmetic mean (standard deviation)				
Score 1: Month 6 (n=15)	-5.4 (± 27.13)			
Score 1: Month 12 (n=15)	-9.6 (± 45.92)			
Score 2: Month 6 (n=21)	-3.3 (± 20.08)			
Score 2: Month 12 (n=21)	-7.1 (± 22.83)			

Score 3: Month 6 (n=14)	-0.6 (± 23.46)			
Score 3: Month 12 (n=14)	-12.3 (± 31.13)			
Score 4: Month 6 (n=55)	-5.6 (± 22.09)			
Score 4: Month 12 (n=51)	-5.1 (± 27.88)			

Statistical analyses

No statistical analyses for this end point

Secondary: Number of Subjects With Treatment-emergent Adverse Events (TEAEs)/Serious Adverse Events (SAEs)/Adverse Events of Special Interest (AESIs)

End point title	Number of Subjects With Treatment-emergent Adverse Events (TEAEs)/Serious Adverse Events (SAEs)/Adverse Events of Special Interest (AESIs)
End point description:	
An AE was any untoward medical occurrence in subject or clinical investigation subject administered a pharmaceutical product and which did not necessarily had a causal relationship with this treatment. A TEAE was AE that occurred from the start of the 1st infusion of 3rd treatment course up to 1 year after 1st infusion of 3rd treatment course. An SAE was any untoward medical occurrence that at any dose: resulted in death, was life-threatening, required inpatient hospitalisation/prolongation of existing hospitalisation, resulted in persistent or significant disability/incapacity, was congenital anomaly/birth defect, or medically important event. An AESI was an AE (serious/non-serious) of scientific and medical concern specific to Sponsor's product or program, for which ongoing monitoring and immediate notification by Investigator to Sponsor was required. Analysis was performed on safety population that included all subjects who had received at least 1 infusion of 3rd treatment course.	
End point type	Secondary
End point timeframe:	
From Baseline up to 12 months	

End point values	Alemtuzumab			
Subject group type	Reporting group			
Number of subjects analysed	56			
Units: subjects				
TEAEs	52			
SAEs	17			
AESIs	17			

Statistical analyses

No statistical analyses for this end point

Adverse events

Adverse events information

Timeframe for reporting adverse events:

All AEs were collected from signature of the informed consent form up to 12 months regardless of seriousness or relationship to investigational product.

Adverse event reporting additional description:

Reported AEs are the treatment-emergent adverse events, that is, AEs that developed/worsened during the 'treatment emergent period' (the time from the first dose of study drug up to the 12 months post third course of treatment). Analysis was performed on safety population.

Assessment type	Systematic
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Dictionary used

Dictionary name	MedDRA
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Dictionary version	22.0
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Reporting groups

Reporting group title	Alemtuzumab
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Reporting group description:

Subjects who had previously (before enrollment in this study) received 2 courses of alemtuzumab, received IV infusion of alemtuzumab in this study at a dose of 12 mg/day for 3 consecutive days, at least 12 months after prior treatment course.

Serious adverse events	Alemtuzumab		
Total subjects affected by serious adverse events			
subjects affected / exposed	17 / 56 (30.36%)		
number of deaths (all causes)	0		
number of deaths resulting from adverse events	0		
Investigations			
Nuclear Magnetic Resonance Imaging Brain Abnormal			
subjects affected / exposed	1 / 56 (1.79%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Surgical and medical procedures			
Multiple Sclerosis Relapse Prophylaxis			
subjects affected / exposed	1 / 56 (1.79%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		
Thyroidectomy			
subjects affected / exposed	1 / 56 (1.79%)		
occurrences causally related to treatment / all	0 / 1		
deaths causally related to treatment / all	0 / 0		

Nervous system disorders Multiple Sclerosis Relapse subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	9 / 56 (16.07%) 0 / 15 0 / 0		
General disorders and administration site conditions Pyrexia subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	1 / 56 (1.79%) 0 / 1 0 / 0		
Eye disorders Endocrine Ophthalmopathy subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	1 / 56 (1.79%) 0 / 1 0 / 0		
Endocrine disorders Hyperthyroidism subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	1 / 56 (1.79%) 0 / 1 0 / 0		
Thyrotoxic Crisis subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	1 / 56 (1.79%) 0 / 1 0 / 0		
Infections and infestations Chest Wall Abscess subjects affected / exposed occurrences causally related to treatment / all deaths causally related to treatment / all	1 / 56 (1.79%) 0 / 1 0 / 0		

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

Non-serious adverse events	Alemtuzumab		
Total subjects affected by non-serious adverse events			
subjects affected / exposed	41 / 56 (73.21%)		
Nervous system disorders			
Headache			
subjects affected / exposed	14 / 56 (25.00%)		
occurrences (all)	17		
General disorders and administration site conditions			
Fatigue			
subjects affected / exposed	3 / 56 (5.36%)		
occurrences (all)	3		
Pyrexia			
subjects affected / exposed	6 / 56 (10.71%)		
occurrences (all)	6		
Gastrointestinal disorders			
Diarrhoea			
subjects affected / exposed	4 / 56 (7.14%)		
occurrences (all)	5		
Nausea			
subjects affected / exposed	3 / 56 (5.36%)		
occurrences (all)	3		
Skin and subcutaneous tissue disorders			
Alopecia			
subjects affected / exposed	3 / 56 (5.36%)		
occurrences (all)	3		
Rash			
subjects affected / exposed	5 / 56 (8.93%)		
occurrences (all)	5		
Musculoskeletal and connective tissue disorders			
Arthralgia			
subjects affected / exposed	3 / 56 (5.36%)		
occurrences (all)	3		
Back Pain			
subjects affected / exposed	4 / 56 (7.14%)		
occurrences (all)	4		
Muscle Spasms			

subjects affected / exposed occurrences (all)	3 / 56 (5.36%) 3		
Infections and infestations			
Nasopharyngitis			
subjects affected / exposed	12 / 56 (21.43%)		
occurrences (all)	13		
Sinusitis			
subjects affected / exposed	4 / 56 (7.14%)		
occurrences (all)	4		
Urinary Tract Infection			
subjects affected / exposed	4 / 56 (7.14%)		
occurrences (all)	5		
Metabolism and nutrition disorders			
Hyperglycaemia			
subjects affected / exposed	3 / 56 (5.36%)		
occurrences (all)	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

None reported