



## Clinical trial results:

**Comparison of the impact of biphasic insulin aspart 30 (BiAsp30), biphasic insulin aspart 70 (BiAsp 70) and insulin aspart on postprandial glucose and lipid metabolism during two consecutive meals in type 2 diabetics.**

### Summary

EudraCT number	2008-008486-35
Trial protocol	AT
Global end of trial date	28 December 2018

### Results information

Result version number	v1 (current)
This version publication date	02 April 2020
First version publication date	02 April 2020

### Trial information

#### Trial identification

Sponsor protocol code	ENM-DA-008
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#### Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT01293396
WHO universal trial number (UTN)	-

Notes:

### Sponsors

Sponsor organisation name	Medical University of Graz
Sponsor organisation address	Weidenweg 12, Kumberg, Austria, 8062
Public contact	Assoc.-Prof. Dr. Harald Sourij, Medical University of Graz, ha.sourij@medunigraz.at
Scientific contact	Assoc.Prof. Dr. Harald Sourij, Medical University of Graz, 43 316 81310, ha.sourij@medunigraz.at

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:

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**Results analysis stage**

Analysis stage	Final
Date of interim/final analysis	05 November 2018
Is this the analysis of the primary completion data?	Yes
Primary completion date	05 November 2018
Global end of trial reached?	Yes
Global end of trial date	28 December 2018
Was the trial ended prematurely?	No

Notes:

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**General information about the trial**

Main objective of the trial:

To investigate the impact of 3 insulin preparations on postprandial glucose and lipid metabolism in two consecutive meals in patients with type 2 diabetes.

Protection of trial subjects:

All laboratory results will be reviewed and the reports signed by the study physician who will record whether it is normal, abnormal but not clinically significant, or abnormal and clinically significant. In the latter case, the eligibility of the subject will be reviewed.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	01 March 2010
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	No

Notes:

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**Population of trial subjects****Subjects enrolled per country**

Country: Number of subjects enrolled	Austria: 20
Worldwide total number of subjects	20
EEA total number of subjects	20

Notes:

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**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)	3
From 65 to 84 years	17
85 years and over	0

## Subject disposition

### Recruitment

Recruitment details: -

### Pre-assignment

Screening details:

50 patients were screened and in total 20 randomizations were performed. After randomization 20 randomized subjects finished all three study visits.

### Period 1

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

### Arms

Are arms mutually exclusive?	No
<b>Arm title</b>	Insulin Aspart

Arm description: -

Arm type	Experimental
Investigational medicinal product name	Novo Rapid
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Suspension for injection in pre-filled pen
Routes of administration	Subcutaneous use

Dosage and administration details:

35% of their usual total daily insulin dose before the standardized breakfast and 25% prior to lunch

Investigational medicinal product name	Novo Mix 30
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection in pre-filled pen
Routes of administration	Subcutaneous use

Dosage and administration details:

35% of their usual total daily insulin dose before the standardized breakfast and 25% prior to lunch

Investigational medicinal product name	Novo Mix 70
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection in pre-filled pen
Routes of administration	Subcutaneous use

Dosage and administration details:

35% of their usual total daily insulin dose before the standardized breakfast and 25% prior to lunch

<b>Arm title</b>	Biphasic insulin aspart 30
Arm description: -	
Arm type	Active comparator
Investigational medicinal product name	NovoMix 30
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection in pre-filled pen
Routes of administration	Subcutaneous use

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Dosage and administration details:

35% of their usual total daily insulin dose before the standardized breakfast and 25% prior to lunch

<b>Arm title</b>	Biphasic insulin aspart 70
Arm description: -	
Arm type	Active comparator
Investigational medicinal product name	NovoMix 70
Investigational medicinal product code	
Other name	
Pharmaceutical forms	Solution for injection in pre-filled pen
Routes of administration	Subcutaneous use

Dosage and administration details:

35% of their usual total daily insulin dose before the standardized breakfast and 25% prior to lunch

<b>Number of subjects in period 1</b>	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70
Started	20	20	20
Completed	20	20	20

## Baseline characteristics

### Reporting groups

Reporting group title	Overall trial
Reporting group description: -	

Reporting group values	Overall trial	Total	
Number of subjects	20	20	
Age categorical			
Units: Subjects			
In utero		0	
Preterm newborn infants (gestational age < 37 wks)		0	
Newborns (0-27 days)		0	
Infants and toddlers (28 days-23 months)		0	
Children (2-11 years)		0	
Adolescents (12-17 years)		0	
Adults (18-64 years)		0	
From 65-84 years		0	
85 years and over		0	
Age continuous			
Units: years			
arithmetic mean	65		
standard deviation	± 6	-	
Gender categorical			
Units: Subjects			
Female	6	6	
Male	14	14	

## End points

### End points reporting groups

Reporting group title	Insulin Aspart
Reporting group description: -	
Reporting group title	Biphasic insulin aspart 30
Reporting group description: -	
Reporting group title	Biphasic insulin aspart 70
Reporting group description: -	

### Primary: AOB postprandial glucose

End point title	AOB postprandial glucose
End point description:	
End point type	Primary
End point timeframe:	after premixed Insulin Aspart 30, Insulin Aspart 70 and Insulin Aspart

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: mg/dL				
arithmetic mean (standard deviation)	197 ( $\pm$ 550)	591 ( $\pm$ 681)	220 ( $\pm$ 617)	

### Statistical analyses

Statistical analysis title	student 's t-test
Statistical analysis description:	student 's t-test for group comparison
Comparison groups	Insulin Aspart v Biphasic insulin aspart 30 v Biphasic insulin aspart 70
Number of subjects included in analysis	60
Analysis specification	Pre-specified
Analysis type	non-inferiority
P-value	< 0.05
Method	ANOVA

### Primary: AOB postprandial triglycerides

End point title	AOB postprandial triglycerides
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End point description:

End point type	Primary
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End point timeframe:

either after Insulin Aspart 30, Insulin Aspart 70 and Insulin Aspart

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: mg/dL				
arithmetic mean (standard deviation)	412 (± 831)	484 (± 342)	358 (± 544)	

## Statistical analyses

Statistical analysis title	student 's t-test
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Statistical analysis description:

student 's t-test for group comparison

Comparison groups	Insulin Aspart v Biphasic insulin aspart 30 v Biphasic insulin aspart 70
Number of subjects included in analysis	60
Analysis specification	Pre-specified
Analysis type	non-inferiority
P-value	< 0.05
Method	ANOVA

## Primary: AOB postprandial free fatty acids

End point title	AOB postprandial free fatty acids
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End point description:

End point type	Primary
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End point timeframe:

either after premixed insulin aspart 30, insulin aspart 70 and insulin aspart

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: µmol/L				
arithmetic mean (standard deviation)	-5.54 (± 5.42)	-4.81 (± 4.96)	-3.91 (± 3.31)	

## Statistical analyses

<b>Statistical analysis title</b>	student 's t-test
Statistical analysis description: student 's t-test for group comparison	
Comparison groups	Insulin Aspart v Biphasic insulin aspart 30 v Biphasic insulin aspart 70
Number of subjects included in analysis	60
Analysis specification	Pre-specified
Analysis type	non-inferiority
P-value	< 0.05
Method	ANOVA

## Secondary: AOB postprandial insulin

End point title	AOB postprandial insulin
End point description:	
End point type	Secondary
End point timeframe: either after premixed insulin aspart 30, insulin aspart 70 and insulin aspart	

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: µU/L				
arithmetic mean (standard deviation)	128.6 (± 106.7)	211.2 (± 149.7)	141.2 (± 155.3)	

## Statistical analyses

No statistical analyses for this end point

## Secondary: Maximum glucose increase

End point title	Maximum glucose increase
End point description:	
End point type	Secondary



End point timeframe:

either after premixed insulin aspart 30, insulin aspart 70 and insulin aspart

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: mg/dL				
arithmetic mean (standard deviation)	60.25 (± 40.45)	89.25 (± 57.85)	55.95 (± 42.44)	

### Statistical analyses

No statistical analyses for this end point

### Secondary: Maximum triglycerides increase

End point title	Maximum triglycerides increase
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End point description:

End point type	Secondary
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End point timeframe:

either after premixed insulin aspart 30, insulin aspart 70 and insulin aspart

End point values	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70	
Subject group type	Reporting group	Reporting group	Reporting group	
Number of subjects analysed	20	20	20	
Units: mg/dL				
arithmetic mean (standard deviation)	69 (± 88.75)	61.95 (± 53.36)	60.74 (± 56.38)	

### Statistical analyses

No statistical analyses for this end point

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

During the study visits

Adverse event reporting additional description:

Reporting of hypoglycemic events during study visits

Assessment type	Systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	22.1
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### Reporting groups

Reporting group title	Insulin Aspart
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Reporting group description: -

Reporting group title	Biphasic insulin aspart 30
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Reporting group description: -

Reporting group title	Biphasic insulin aspart 70
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Reporting group description: -

Serious adverse events	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70
Total subjects affected by serious adverse events			
subjects affected / exposed	0 / 20 (0.00%)	0 / 20 (0.00%)	0 / 20 (0.00%)
number of deaths (all causes)	0	0	0
number of deaths resulting from adverse events	0	0	0

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

Non-serious adverse events	Insulin Aspart	Biphasic insulin aspart 30	Biphasic insulin aspart 70
Total subjects affected by non-serious adverse events			
subjects affected / exposed	2 / 20 (10.00%)	1 / 20 (5.00%)	2 / 20 (10.00%)
Endocrine disorders			
Hypoglycaemia			
subjects affected / exposed	2 / 20 (10.00%)	1 / 20 (5.00%)	2 / 20 (10.00%)
occurrences (all)	2	2	5

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported