

Influence of the nutritional supplement Diamel on the HOMA-B and HOMA-IR indexes in patients with type 2 diabetes mellitus

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INTRODUCTION

The nutritional complement DIAMEL, made up of aminoacids, vitamins, oligoelements, lettuce extract and bilberry extract, acted by process of molecular magnetization have actions at pancreatic and gastrointestinal level and could represent a therapeutic alternative in patients with type 2 diabetes mellitus.

Objectives:

To evaluate, over a six-months period, insulin sensitivity and function of beta cells with measurement of HOMA-B and HOMA-IR indexes, in patients with type 2 diabetes receiving glibenclamide plus Diamel

RESEARCH DESIGN AND METHODS:

A total of 60 type 2 patients were randomized to DIAMEL more glibenclamide (n=30) or only glibenclamide (n=30). DIAMEL were administered two capsules 30 minutes previous to the breakfast, lunch and food. The patients had ages between 40 to 65 years and time of evolution from 0 - 10 years. Those patients with greater glycohemoglobin (HbA1c) more 10% or moderate or severe chronic complications were excluded. Were followed during 6 months with clinical and biochemistry evaluation (fasting blood insulinaemia-3, fasting blood glucose-3, post-prandial blood glucose of 2 hours, HbA1c, total cholesterol, HDL-cholesterol, tryglicerides, HOMA-IR and HOMA-B at the beginning, 3 months and 6 months.

Table #1 DIAMEL COMPONENT*

Arginin	35.5 mg	Glycin	2.1 mg
Ascorbic acid	10 mg	Ornitin	17.7 mg
Zinc sulphate	6 mg	Calcium pantotenat	1 mg
Folic acid	33 mcg	Blueberry extract	345 mg
Fumaric acid	35.5 mg	Lettuce extract	152 mg
L-Carnitin	35.5 mg	L-Cystein	14.2 mg
Natrium met.p.	0.33 mg	Piridoxal	0.33 mg
Cianocobalamin	0.16 mcg		

*Nutritional complement of Catalysis Lab.

Table 2

Clinics characterists at beginning of study in the group A (patients with diamel more glibenclamide) and group B (patients with only glibenclamide)

	GROUP A	GROUP B
Sexa M/F	20/10	17/13
Age at diagnostic(years)	48.9±9.1	53.7±8.1
Evolution(years)	5.3±4.7	3.9±3.8
Weight(kg)	79.7±17	76.6±12
BMI(kg/m ²)	28.9±4.5	27.7±3.9
Sistolic tension(mmHg)	127.8±13.3	126.3±12.9
Diastolic tension(mmHg)	82.8±6.1	82.3±7.7
Waist circumference(cm)	101.1±11	97.1±9
Waist/hip Index	1.02±0.06	1.02±0.04

Table 3

Evolution of the insulin resistance and function of the beta cells by means of the HOMA-IR and HOMA-B in the groups A and B

Index	Evolution	Group A n = 30 X ± SD	Group B n = 30 X ± SD	p
HOMA-IR(%)	Start	7.5 ± 0.89	7.6 ± 0.7	0.87
	3 month	5.6 ± 0.73	6.6 ± 0.69	0.32
	6 month	6.4 ± 0.79	7.2 ± 0.46	0.46
HOMA-B(%)	Start	138.6 ± 16.8	174.1 ± 35.1	0.24
	3 month	133.9 ± 26.2	116.8 ± 11.8	0.35
	6 month	15 6.1 ± 8.6	105.1 ± 8.6	0.63

Figure #1

Correlation in group A between index HOMA-B with HbA1c at initial and after 6 months of treatment with Diamel

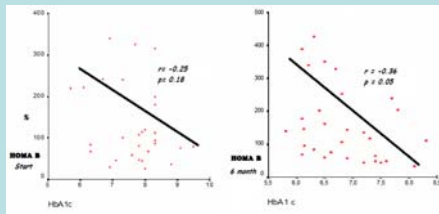


Figure #4

Correlation in the group B between HOMA-IR with HbA1c at initial and after 6 months

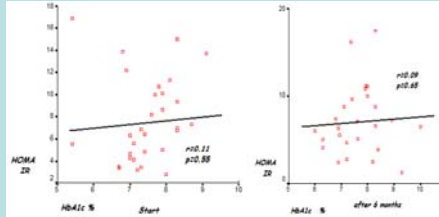


Figure #7

Correlation in the group A between HOMA-B with HOMA-IR at start the study and after 6 months

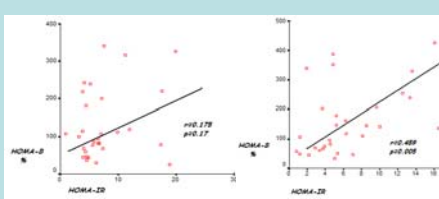


Figure #10

Correlation in the group B at start the study and after 6 months between BMI with HOMA-IR

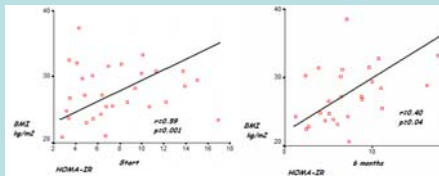


Figure #2

Correlation in group B between the HOMA-B with HbA1c at initial and after 6 months of treatment with Diamel

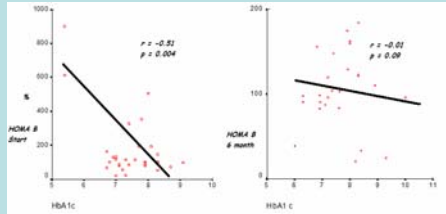


Figure #5

Correlation in the group A between HOMA-IR with BMI and waist circumference after 6 months

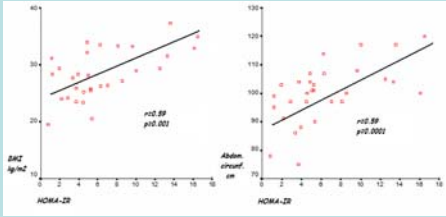


Figure #8

Correlation in the group B between HOMA-B with HOMA-IR at start the study and after 6 months

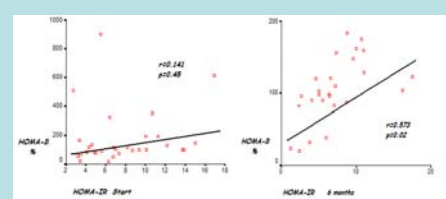


Figure #11

Correlation in the group A between HOMA-IR with waist/hip index at start and after 6 months

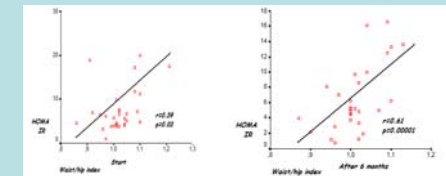


Figure #3

Correlation in the group A between HOMA-IR with HbA1c at start and after 6 months

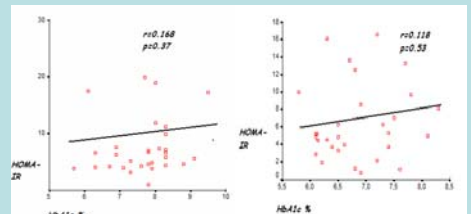


Figure #6

Correlation in the group B between HOMA-IR with BMI and waist circumference after 6 months

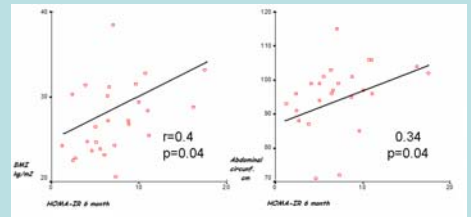


Figure #9

Correlation in the group A at start the study and after 6 months between BMI with HOMA-IR

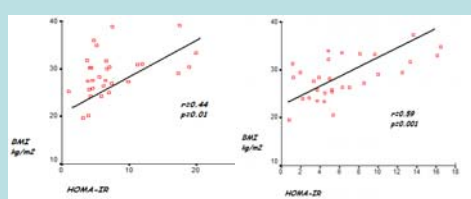
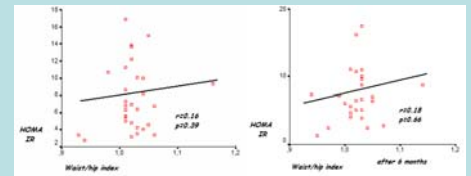


Figure #12

Correlation in the group B between HOMA-IR with waist/hip index at start and after 6 months



Results:

Both groups offered resistance insulinic (HOMA-IR) with tendency to decrease in the group A with effect of Diamel (table #3). The insulin secretion (HOMA-B) increase in the group with Diamel while diminished in the control group (table #3). In the figures #1 and #2 we observed an inverse relation between the HOMA-B and the HbA1c, more significant at the 6 months of the treatment with Diamel. Tendency to the increase of the HbA1c exists when it increases HOMA-IR although this correlation was not significant (figures #3 and 4). Both groups offered direct relation between HOMA-IR with BMI and waist circumference, more significant in the group with Diamel (figures #5 and 6). The increase of the resistance insulinic (HOMA-IR) produces an compensatory increase in the cells beta function (HOMA-B), with greater meaning in the group A at the 6 months of the treatment with Diamel (figures #7 and 8). The increase of the BMI increases the resistance insulinic in both groups (figures #9 and 10). The waist/hip index presents a direct relation with HOMA-IR more significant in the group with Diamel (figures #11 and 12). Adverse effects attributable to Diamel did not appear during the investigation.

CONCLUSIONS

Our results indicate a favorable effect of the supplement Diamel in patients with diabetes type 2, with significant increase in the function of the cells beta and tendency to the reduction in the resistance insulinic. The anthropometric variables BMI, waist circumference and waist/hip index were significantly positive correlated with HOMA-IR index after the treatment with diamel.