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NEW TECHNOLOGIES TO IMPROVE GLYCEMIC TARGET OF ADULT PEOPLE WITH DIABETES TYPE 1

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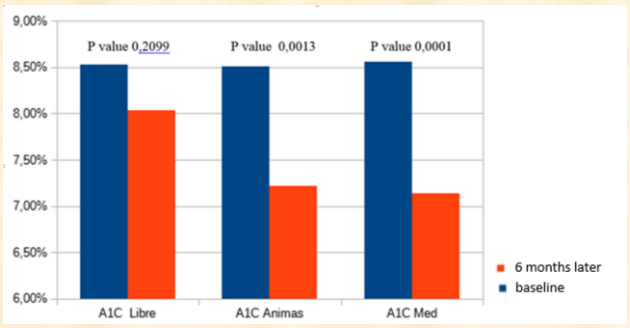

Figure 1

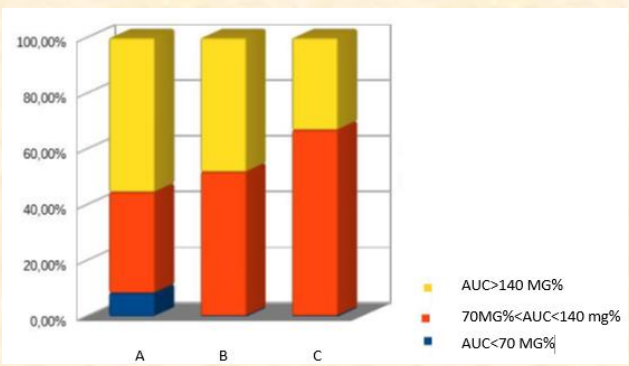

Figure 2

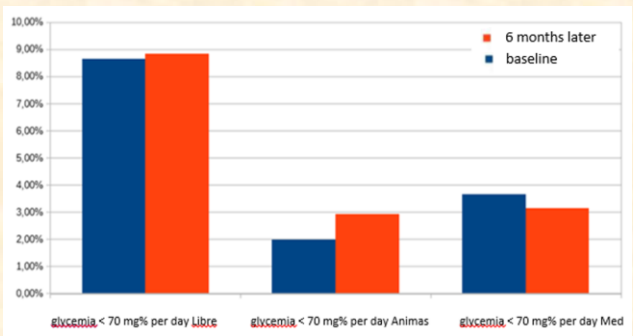

Figure 3

Parametro	Gruppo A	Gruppo B	Gruppo C	P value
Age (years)	27,89 DS± 9,84	35,85 DS± 12,67	39,63 DS± 13,87	0,03000 B e C vs A
Women/Men	9/10	11/9	19/20	0.9999
Diabetes' Duration (years)	10,74 DS± 8,92	11,84 DS± 9,60	15,85 DS± 12,37	0,45740
Weight (kg)	65,95	68,88	66,72	0,18070
BMI (kg/mt2)	22,96	24,68	23,91	0,02290
A1c (%)	8,53% DS± 1,29	8,51% DS± 1,32	8,56% DS± 1,46	0,88400

Tab 1:

Parametro	Gruppo A	Gruppo B	Gruppo C	P value
AUC < 70 mg%	8,42%	0,14%	0,16%	<0,0001
70 AUC 140 mg%	36,13%	51,71%	66,76%	<0,0001
AUC > 140 mg%	55,46%	48,14%	33,08%	0,00600
% of CGM daily measurements with glycemia < 70 mg.	8,65%	1,98%	3,65%	0,0043
Mean glicemya (mg%)	161,59	161,59	159,60	0,59410
DS della glicemia (mg%)	72,72	12,11	51,24	0,00020
Insulin requirement (UI/die/Kg)	0,67	0,48	0,50	0,00240

Tab 2

Parametro	Gruppo A	Gruppo B	Gruppo C	P value
Variazione dell' A1c (%)	-0,49474	-1,325	-1,49	0,0073 *
ΔT<70 (%)	0,00410	0,1428	0,05	0,9433
ΔT<70-140 (%)	-0,00195	6,5714	0,18	0,6083
ΔT>140 (%)	0,01508	-6,714	-0,23	0,5054
ΔG<70 (%)	0,00172	0,0093	-0,01	<0,0001
ΔGM (mg%)	1,09625	-6,428	-1,35	0,3694
ΔDS (mg%)	-4,02500	-4,157	46,29	0,7926
ΔI (UI/die/Kg)	-0,11058	-0,063	-0,01	0,0002

Tab 3

ABSTRACT

The main glycemic target of adult people with diabetes is represented by the more stringent A1C value that could be obtained without significant hypoglycemia. Many intervention trials showed that insulin pumps and/or glucose sensors are efficacious to improve glycemic targets in comparison to multiple daily injections (MDI) and self-monitoring of blood glucose (SMBG), but real-life comparison between different technologies is lacking. The aim of the present study is to compare the effectiveness of different technologies to achieve glycemic targets in adult people with type 1 diabetes (T1D).

METHODS

We retrospectively compared A1C and AUC (Area Under the Curve) <70 mg/dl on CGM measurement of 86 adult patients (matched for age, duration of diabetes and baseline A1c) with T1D previously treated with MDI and SMBG (Tab.1), before and six months after the implementation of carbohydrate counting with FreeStyle Libre + MDI (group A, 17 patients), Animas + Dexcom G4P (group B, 20 patients) and Medtronic 640G with Enlite sensor (group C, 49 patients). We also compared the Time into Range (70 - 140 mg/dl), AUC > 140 mg/dl and % of CGM daily measurements with glucose levels < 70 mg% .

RESULTS

Group A showed a lesser A1C decrease from baseline than group B (respectively, mean ± SDS = - 0.49±0.58% vs - 1.33±0.23%; p<0.01) and group C (- 1.49 ± 0.23%; p<0.01). There was any significant difference between groups B and C (Fig.1). On baseline (implantation time) there were significant differences of AUC <70 mg% between group B and C and group A (p<0.0001). We also observed significant differences on TIR and % of CGM daily measurements with glucose levels < 70 mg (Fig.2 and Fig.3, Tab.2). There were no significant differences between baseline and 6 months after the implementation of system. (Tab.3)

CONCLUSIONS

In real-life, new tecnologies + carbohydrate counting are able to improve glycemic targets, but Animas + Dexcom G4P or Medtronic 640G with Enlite sensor decrease A1C without increasing hypoglycemia, reduce exposure to daily hypoglycemia and increase time spent into euglycemia with respect to FreeStyle Libre system + MDI.