CARBOHYDRATE METABOLISM IN ACROMEGALY AND TREATMENT IMPACT

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INTRODUCTION

Carbohydrate metabolism (CHM) is impaired in over 30% of acromegalic patients. Natural history of acromegaly and treatment modalities, i.e. surgery, somatostatin analogues (SSA) and pegvisomant, may impact in a different way on CHM.

AIM

To assess CHM alterations [impaired fasting glucose (IFG) and diabetes mellitus (DM)] in acromegaly and their relationship with clinical features and treatment options.

PATIENTS AND METHODS

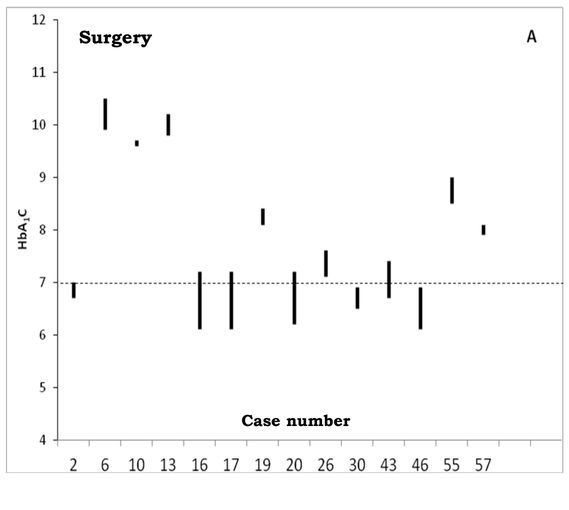
In a retrospective study we have included 55 patients, with acromegaly. Age, gender, BMI, tumor size, IGF1 levels and the presence of IFG or DM have been analyzed before and after surgery or medical treatment.

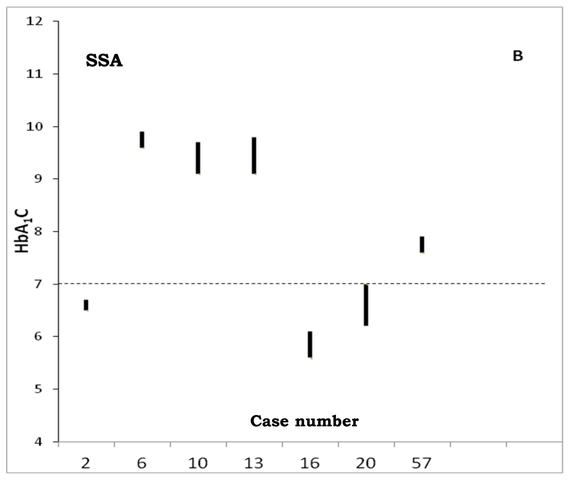
RESULTS

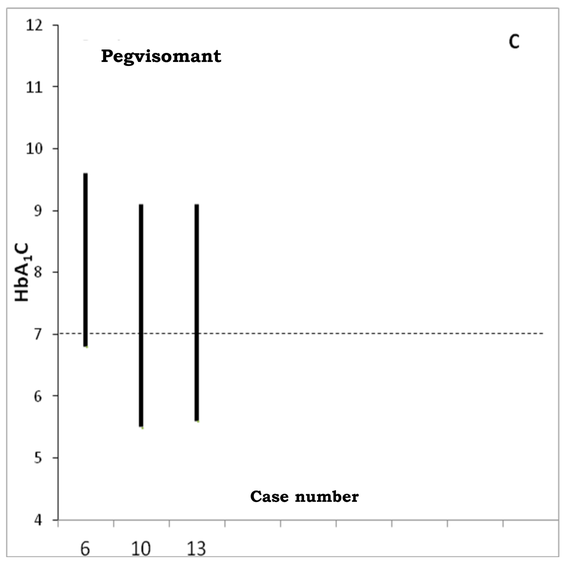
	TOTAL	NOT ICHM	ICHM		p
			IFG	DM	
Characteristics					
N	55	27	13	15	
Gender M/W (%)	30/ 25	15/12	7/6	8/7	n.s
Age (years)	50±17	46,45±14	54.9±18	52±16	n.s.
BMI (Kg/cm^2)	27,9±3,8	27.71±3,6	28,3±3,9	27,13±3,8	n.s.
Hba1c (%)	6,95		5,9	7,97	<0,001
IGF1 (ng/ml)	843	851	798	906	n.s.
Size: Mac/Mic	34/21	14/13	10/3	10/5	<0.05
Treatment					
Surgery (%)	49 (88%)	24 (88,8%)	11 (84,6%)	14 (93,3%)	
RT(%)	26 (47%)	13 (48,1%)	5 (38%)	8 (53,3%)	
Drugs(%)	30 (54,5%)	14 (51,8%)	8 (61,5%)	8 (53,3%)	
Cabergoline	12 (21,8%)	8 (29,6%)	3 (23,1)	1 (0,07%)	
SSA	29 (52,7%)	14 (51,9%)	7(53,8%)	8 (53,3%)	
Pegvisomant	9 (16,3)	3 (11,1 %)	3 (23,1%)	3 (20,0%)	

ICHM: Impaired carbohydrate metabolism, *IFG: Impaired fasting glucose, DM: diabetes*

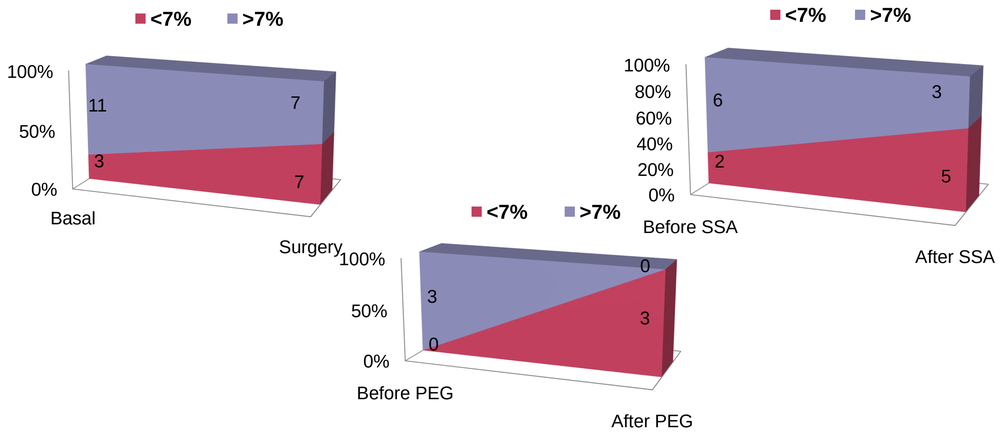
HbA1c after different treatments







DM patients with HbA1c on target before and after different treatments



SSA: Somatostatin Analegs PEG: Pegvisomant.

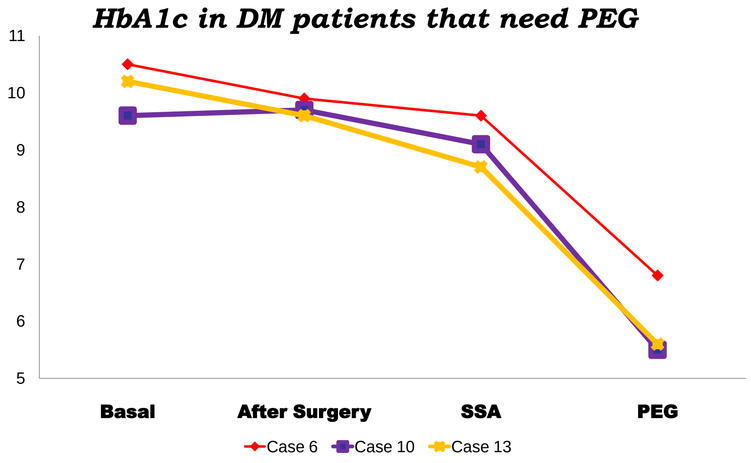
IGF_1, FPG and HbA1c in patients with DM after three treatment options

Diabetics patients

Treatment	N*	IGF-1	FPG	HbA1c before	HbA1c after
Surgery	7	129 (126-129)	83 (83-132)	7,6 (6,7-8,5)	6,7 (6,2-6,8)
S+SSA	4	266 (86-379)	110 (81-176)	7,1 (6,7-7,4)	6,6 (5,7-8,5)
PEG	3	262 (246-337)	92 (81-124)	9,8 (8,9-10,5)	5,6 (5,5-6,8)
p		n.s	n.s.	<0,05	n.s

S: surgery, SSA: somatostatin analogues, PEG: pegvisomant

HbA1c in DM patients that need PEG



Change in HbA1c and hypoglicemic treatment after surgeru, SSA or PEG

	BEFORE TREATMENT	6 MONTHS LATER
SURGERY: n = 7		
HbA1c (%)	7,6 (6,7-8,5)	6,7 (6,2-6,8)
Hypoglycemic treatment		
Only diet (n)	2	4
Diet + 1 OA (n)	3	2
Diet + 2 OA (n)	2	1
Insulin (n)	0	0
Insulin+OA (n)	0	0
Insulin dose (U/d)	0	0
SURGERY + SSA: n=4		
HbA1c	7,1 (6,7-7,4	6,6 (5,7-8,5)
Hypoglycemic treatment		
Only diet (n)	0	0
Diet + 1 OA (n)	2	2
Diet + 2 OA (n)	2	1
Insulin (n)	0	0
Insulin+OA (n)	0	1
Insulin dose (U/d)	0	0,19 (18ui)
PEGVISOMANT: n=3		
HbA1c	9,8 (8,9-10,5)	5,6 (5,5-6,8)
Hypoglycemic treatment		
Only diet (n)		1
Diet + 1 OA (n)	1	1
Diet + 2 OA (n)		
Insulin (n)	2	1
Insulin+OA (n)		
Insulin dose (U/d)	0,83 (68ui)	0,19 (18ui)

HbA1c: mean ±DE, OA: Oral hypoglycemic agent

CONCLUSIONS

Up to 50% of patients with active acromegaly have CHM impairment and correlates with tumor size. Only pegvisomant is associated with significant improvement in glycemic control and a reduction in hypoglycemic treatment

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