



# Could the sensor-augmented pump determine a better beta cells reserve in time or are there other interfering factors?

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## ABSTRACT

There is no unanimous consent that the use of sensor augmented pump (SAP) right after the diagnosis of diabetes will lead to a better preservation of insulin reserve and metabolic control in later years.

## RESULTS

We found no significant differences between the three groups in terms of C-peptide levels, glycated and anti-GAD, but a far better average percentage of therapeutic range BG levels in children with SAP. However, if we evaluate the data considering the C-peptide levels and anti-GAD at the onset of diabetes, those with higher levels of C-peptide and lower levels of anti-GAD maintain a more insulin reserve over time and make less insulin, tending to have lower percentage of BG out of range.

## METHODS

In our study we compared 3 group of 15 prepubertal children:

- 1) SAP within one month after the diagnosis of diabetes;
- 2) pump and self-monitoring glycemic control (SMBG) - at least 5 daily measures
- 3) MDI with SMBG.

We considered C-peptide, HbA1c and GAD antibodies levels at the onset and 18 months later. Then the kids with SMBG were provided with glucose monitoring flash system for two weeks. We compared C-peptide, insulin dose (U/Kg/day), percentage of blood sugar levels outside the desired range (90-130 mg/dl) and anti-GAD levels.

C peptide at onset vs			
18 m C pep	% hyper	% Hypo	ins dose
r = 0,90	r = - 0,81	r = - 0,78	r = - 0,80
Anti GAD at onset vs			
r = - 0,83	r = 0,80	r = 0,72	r = 0,82

What we observed can inspire research with the implication of more patients.

## CONCLUSIONS

18 m		C pep	GAD Ab	% over	% under	ins/day	A1c
SAP	M	0,43	156,1	46,6	14,5	0,6	62,6
	SD	0,25	62,6	7,7	4,1	0,13	3
MICRO	M	0,49	146,2	46,7	15,4	0,59	66,1
	SD	0,23	48	8,6	2,8	0,14	3,8
MDI	M	0,53	131,9	50	21,7	0,61	72,5
	SD	0,21	46,2	8,2	4,2	0,14	4,7

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