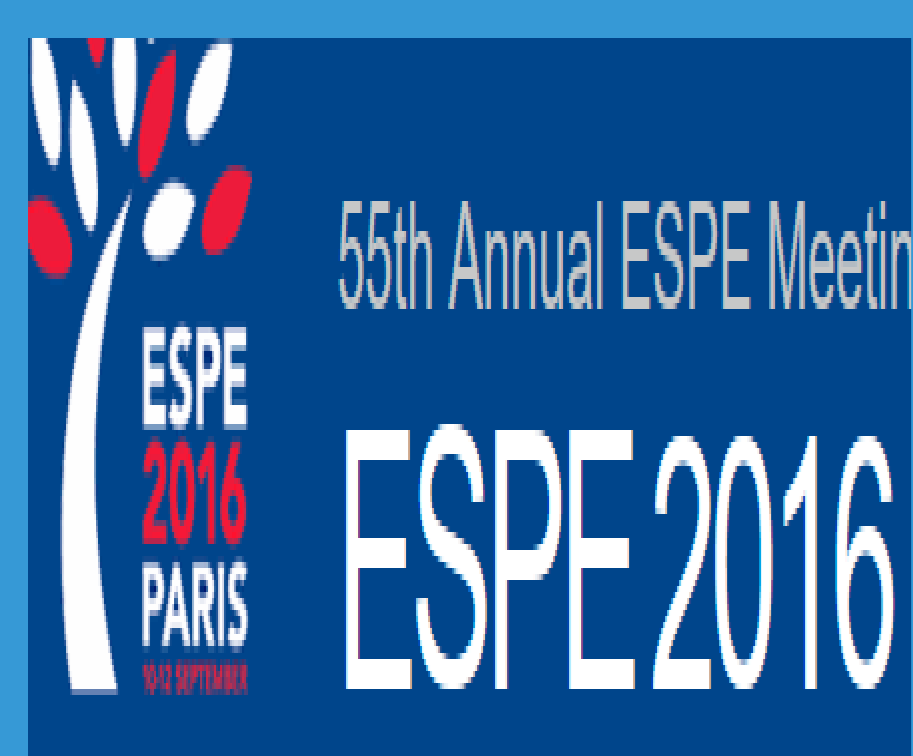


PERMANENT NEONATAL DIABETES BY GENE MUTATION KCNJ11. EVOLUTION AND TREATMENT AFTER THREE YEARS WITH SULPHONYLUREAS

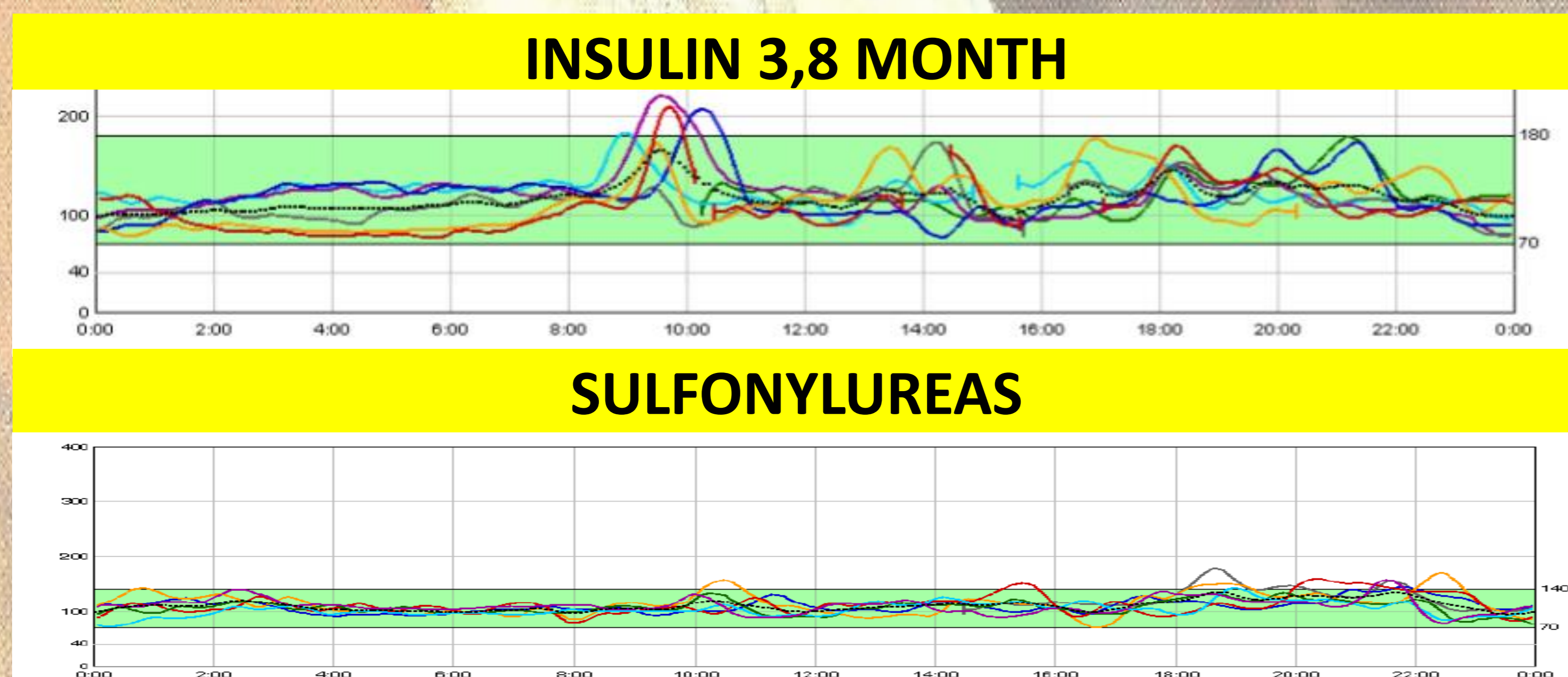
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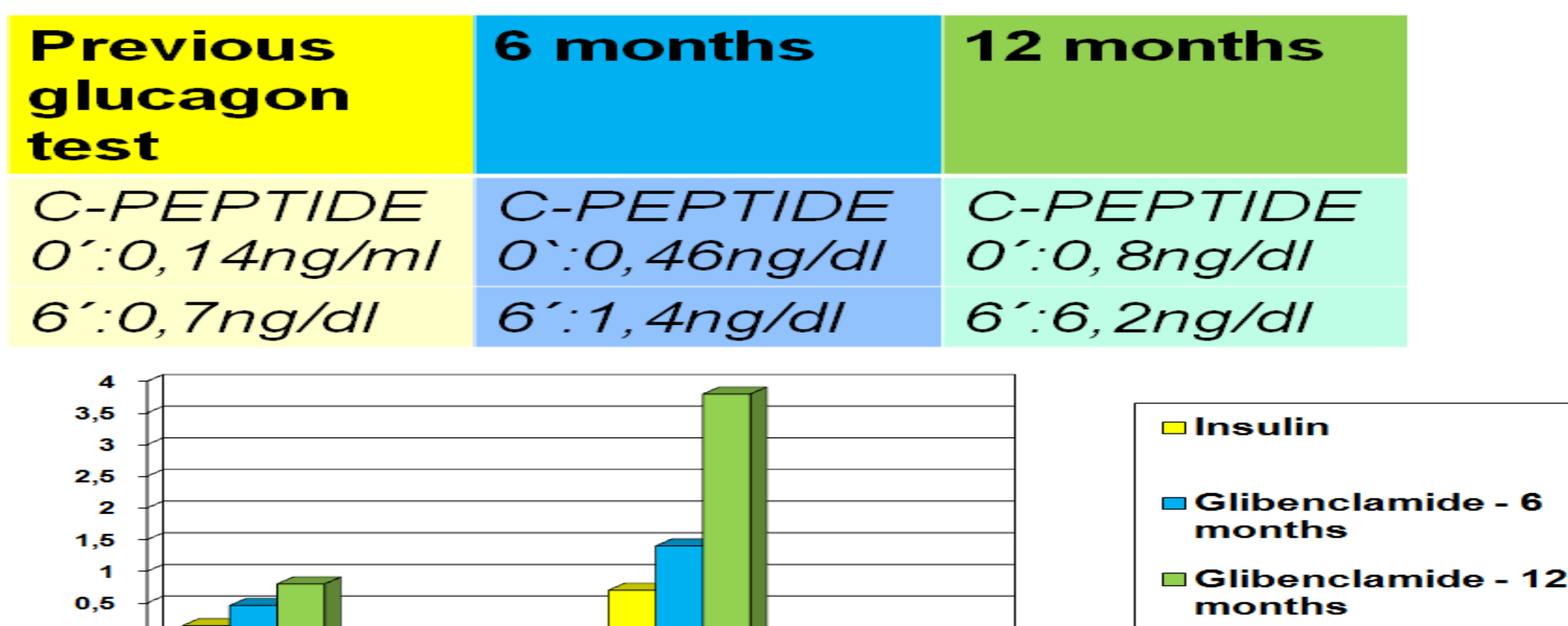


BACKGROUND: Permanent neonatal diabetes(PND)with heterozygous mutations of KCNJ11, respond to treatment with sulphonylureas. We report a case of PND in a baby, and mother previously mis-diagnosed with Type1 DM. Both were switched from insulin to oral sulphonylureas. We evaluate the response and evolution.

CASE REPORT:A male newborn at 37 weeks'gestation, with a birthweight 2750g (40thC) and length 48cm(40thC), was admitted for glycemic monitoring. He presented with hyperglycemia in the first week, requiring insulin infusions during his first month 0.2-0.4 UI/kg/day.
 Family history: Parents non-consanguineous. Mother on CSII diagnosed with Type I DM from the third month of life, having presented with severe ketoacidosis and dehydration. Currently: HbA1C: 9%.
 Initial laboratory evaluations in baby showed, blood glucose:320mg/dl, HbA1C:3,5%, no ketonuria, C-peptide:0.22ng/ml, Insulin:3,2mU/ml, with negative diabetes antibodies in mother and baby (Anti-GAD, Islet, insulin autoantibodies).
 Genetic testing undertaken simultaneously on both(at baby age 3.8months)revealed heterozygous mutation in exon1 KCNJ11(p.Arg201His,c.602G>A).
 Following gradual transition from insulin, at 3.8 months the patient was successfully shifted to sulphonylurea therapy, requiring at the beginning 0.45mg/Kg/day, decreasing to 0.2mg/Kg/day from the 6th month of life until 2.6 years, requiring 0.15mg/Kg/day currently.
 We evaluated the pancreatic insulin reserve, glycemic control and MCGC prior to the transition, we repeated the same evaluation 6 and 12 months later. We also made the follow up of HbA1c, fasting insulin and c-peptide over successive years. As result, the glycemic control and the pancreatic reserve were improved. Evolution HbA1c:5.2 to 5.8% throughout the treatment time.
 Two years since starting sulphonylureas: fasting insulin 3.9mU/ml and C-peptide 0.7ng/ml; 3years since starting; fasting insulin:10mU/ml and C-peptide:2,88ng/ml.



TEST DE GLUCAGÓN FOR C-PEPTIDE



	Basal	6 months	12 months	24 months	36 months
SULFONYLUREAS mg/kg/d	Patient 0,45	0,2	0,2	0,2	0,15
INSULIN UI/kg/d	Patient 0,35	3 days transition to SU			

Previous GOTT	6 months later	After a year
Insulin 0':1,7mUI/ml	Insulin 120':3,4m UI/ml	Insulin 0':1,6mUI/ml
Insulin 120':9,4m UI/ml	Insulin 120':9,4m UI/ml	Insulin 0':3mUI/ml
Insulin 120':11m UI/ml	Insulin 120':11m UI/ml	Insulin 120':11m UI/ml
Glucose: 0':262mg/dl	Glucose: 120':390mg/dl	Glucose: 0':80mg/dl
Glucose: 120':238mg/dl	Glucose: 120':238mg/dl	Glucose: 0':81mg/dl
Glucose: 120':210mg/dl	Glucose: 120':210mg/dl	Glucose: 120':210mg/dl

After 2 years: Insulin:3,9 mUI/ml y C-peptide: 0,7 ;
 3 years later: Insulin:10mUI/ml y C-peptide: 2,88ng/ml

CONCLUSION: Although the clinical onset of patients with mutations in Kir6.2 is typically described from the first month of life, our case suggests that the blood glucose levels are already affected from birth. This case shows that earlier treatment with sulphonylureas improves pancreatic reserve increasing the c-peptide leading to lower doses being required. We will re-evaluate the diagnosis of patients with early onset Type1 DM.

EVOLUTION OF GLYCATED HEMOGLOBIN

