TRANSIENT NEONATAL DIABETES MELLITUS IN HANOI, VIETNAM: CLINICAL FEATURE AND OUTCOME

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Introduction

Transient neonatal diabetes mellitus type 1 (TNDM1) is a rare with an incidence of between 1/400,000-1/500,000 but remarkable form of diabetes which presents in infancy, resolves in the first months of life, but then frequently recurs in later life. TNDM is mainly caused by anomalies in the imprinted region on chromosome 6q24; however, recently, mutations in the *ABCC8* gene, which encodes sulfonylurea receptor 1 (SUR1), have also been implicated in TNDM.

Objectives:

To describle clinical features and laboratory manifestations of patient with TNDM and to evaluate outcome of management.

Methods:

Cases series study, Clinical features, biochemical finding, mutation analysis and management outcome of 5 cases from 5 unrelated families were studied. All exon of *KCNJ11, ABCC8* and *INS* genes were amplified from genomic DNA and directly sequenced. If the mutation of *KCNJ11, ABCC8* and *INS* has failed to detect, methylation – specific PCR would be done to detect the loss of methylated region on chromosome 6q24.

Results:

5 probands from 5 unrelated families were diagnosed TNDM and were identified mutation in *Ch6q24* in 4 cases and *ABCC8* genes in one case.

Demographics :

- Age of diagnosis was 19.5 ±11.8 days
- Gender: 3 males, 2 females
- Gestation age was 38.6±2.6 weeks
- BW: 2440 ± 512 gram (3 cases has BW < 3 percentile)

Table 1. Genotype, phenotype of patients with TNDM

Genotype-Phenotype		Case1	case2	Case 3	Case 4	Case 5
Genotype		Het of c.7450delT and c.7812C>T on *ZFP57*	materal hypomethylation at TND (6q24), IGF2R (6q27), SNRPN (5q11) and GRB10 (7q12) loci	Het 398delT:L133HfsX49, 499C>CT:167R>RC, 760C>CT:254L>LF)	maternal hypomethylation at the GRB10 and PEG3 loci	Het. missense mutation p.R1183W on *ABCC8* gene
Phenotype	Clinical	Polydipsia, polyuria, vomit, poor feeding, macroglossia, exumbilication	Polydipsia, polyuria, fever, cough diarrhea, dehydration shock, macroglossia, exumbilication	Polyuria, polydipsia, macroglossia exumbilication	Macroglossia, exumbilication, Severe DKA	Polyuria, polydipsia, fever, lethargy
	pH		7.32	7.3	6.87	7.08
	HCO^-_3 (mmol/l)		21.7	20.7	3.3	3.3
	BE (mmol/l)		-4.2	-4.9	Very low	-26
	HbA1C (%)	6.8	8.3	5.8	6.6	7.6
	Glucose (mmol/l)	30	31.1	56	34.3	31.7
	Ketourine		+	+	+	+
	Age of resolve (months)	17	5.5	5	5.5	6
	Current age (years)	7.4	6.0	4.2	2.7	2.25

Outcome:

- 4 out of 5 patients stopped insulin after 5-6 months of treatment. Among them, one case had been treated with insulin for a long time and recovered by 18 months of age.

- Currently, the patients are 51.6 ± 28.9 months old and are euglycemic and normal HbA1C without any insulin or oral hypoglycemic agents.

-Now 4 cases have normal development, one case has mild development delay

Conclusions:

It is important to perform screening gene mutation for patients with diabetes diagnosed before 6 months of age to control blood glucose and follow up the patients

References:

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Conflicts of interest: None declared

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Diabetes

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