

DIABETIC CARDIOVASCULAR AUTONOMIC NEUROPATHY IN CHILDREN

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Purpose To study CAN prevalence and understand the diagnostic capabilities of HRV - tests of diabetic cardiovascular autonomic neuropathy in children with type 1 diabetes

- ### Patients and Methods
- 100 children with T1D 15.2 yrs [9.0-17.8]
 - duration T1D 6.5 yrs [4.0-10.6]; HbA1c 8.1% [6.3-9.7]
 - Optimal level (HbA1c<7.0%) in 62% of children (group I) and nonoptimal in 38% of children (group II) criteria ISPAD Consensus Guidelines, 2018
 - Control group (healthy children) n=100

Own modified cardiovascular test scores

RESULTS	Norma	Group I (HbA1c<7.0%)	Group II (HbA1c>7.0%)	Control group (n=100)
RR 30:15 ratio	>1.04 sec	1.09±0.01 sec*	0.98±0.03 sec***	1.06±0.02 sec
ΔRR quiet breath	>0.15 sec	0.14±0.004 sec*	0.09±0.004 sec**	0.37±0.16 sec
RR deep breath	>0.20 sec	0.26±0.1 sec*	0.15±0.04 sec***	0.38±0.08 sec

TEST	Pathology (at least 2 abnormal results out of 4)
RR 30:15 ratio	<1.04 sec
ΔRR quiet breath	<0.15 sec
RR deep breath	<0.20 sec
BP response to standing	≤ 10

RESULTS (correlation analysis)	Group I (HbA1c<7.0%)	Group II (HbA1c>7.0%)
RR 30:15 ratio	r =-0.77	r =-0.88
ΔRR quiet breath	r =-0.47	r =-0.9
RR deep breath	r =-0.65	r =-0.85

CONCLUSIONS

Classic tests (D.J.Ewing et al, 1985)

Own modified test

Difficulties in Pediatric practice (the the Valsalva maneuver, isometric (static) exercise tests)

The method is simple
A more satisfactory method in Pediatric practice

Cardiovascular autonomic neuropathy in 0.5-50% cases

Cardiovascular autonomic neuropathy in 41%
group I - 29% group II – 71% (p=0.00001)

