

Evaluation Of Biochemical Cardiovascular Risk Factors, Carotid Intima Media Thickness And Arterial Stiffness Before And After Surgery In Patients With Primary Hyperparathyroidism

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Background

Primary hyperparathyroidism is a condition related with cardiovascular mortality and morbidity (1).

Aim of this study is to investigate whether there is a difference between healthy controls, hypercalcemic patients with surgical decision and normocalcemic primary hyperparathyroidism patients for parameters like metabolic cardiovascular risk factors, carotis intima media thickness and pulse wave velocity and if there is a difference at patients with surgical decision 6 months after surgery or if there is a difference in patients with medical follow up in time.

Materials & Methods

Seventeen hypercalcemic, 16 normocalcemic primary hyperparathyroidism patients and 15 healthy controls were included to the study. Patient group was evaluated at the beginning and 6th month.

Results

At the beginning of the study carotis intima media thickness (CIMT) was found higher at primary hyperparathyroidism patient group (patient group: $597 \pm 80 \mu\text{m}$, control group: $529 \pm 91 \mu\text{m}$ $p=0,020$). Likewise at the beginning pulse wave velocity (PWV) was higher at hyperparathyroidism patient group than healthy control group ($9,5 \pm 1,8 \text{ m/s}$ vs $7,7 \pm 0,8 \text{ m/s}$ $p=0,000$). Although there is a significant decrease at hypercalcemic patients for CIMT after 6th month of the surgery ($601 \pm 91 \mu\text{m}$ vs $541 \pm 65 \mu\text{m}$ $p=0,006$), no difference occurred at normocalcemic patients at the end of the 6th month ($p=0,686$). Again there is a significant decrease at hypercalcemic patients for PWV after 6th month of the surgery ($9,6 \pm 1,8 \text{ m/s}$ vs $8,4 \pm 1,5 \text{ m/s}$ $p=0,000$), no difference occurred at normocalcemic patients at the end of the 6th month for PWV ($9,4 \pm 1,9 \text{ m/s}$ vs $10,0 \pm 1,9 \text{ m/s}$ $p=0,196$).

	Hypercalcemic (HC) (n=17)	Normocalcemic (NC) (n=16)	Control (n=15)	p
Glucose (mg/dl)	91±6,1	92±9,7	89±7,1	0,764
Creatinine (mg/dl)	0,7±0,1	0,7±0,1	0,7±0,1	0,749
Calcium (mg/dl)	11,1±0,6	9,7±0,4	9,6±0,4	0,000
Albumin (g/dl)	4,5±0,2	4,6±0,2	4,6±0,2	0,425
Phosphorus (mg/dl)	2,7±0,5	3,3±0,3	3,5±0,5	0,000
25-OH VitD3 (ng/ml)	25,8±5,7	34,3±14,5	27±3,8	0,079
PTH (pg/ml)	129±229	78±25	46±12	0,006
Calciuri (mg/24 saat)	281±125	120±101	118±55	0,001
Total Cholesterol (mg/dl)	215±31	206±42	214±18	0,697
Triglycerides (mg/dl)	112±25	133±60	130±61	0,995
LDL Cholesterol (mg/dl)	134±25	117±29	136±35	0,158
HDL Cholesterol (mg/dl)	53±10	60±17	51±11	0,131
Insulin (μU/ml)	9,4±5,7	10,0±4,0	10,4±5,3	0,964
HOMA index	2,0±1,4	2,3±1,0	1,6±1,2	0,993
CIMT (μm)	601±91	593±69	529±91	0,043
PWVao (m/sn)	9,6±1,8	9,4±1,9	7,7±0,8	0,005
AIX brachial (%)	-21±31	-15±25	-22±15	0,925

	0. month	6. month	p
Glucose (mg/dl)	91±6	89±5	0,338
Insulin (μU/ml)	10,5±5,7	10,4±4,6	0,968
HOMA index	2,39±1,42	2,31±1,08	0,773
Ca (mg/dl)	11,1±0,6	10,0±2,3	0,080
P (mg/dl)	2,7±0,5	3,2±0,5	0,003
25-OH vit D (ng/ml)	26,5±5,7	32,2±10,7	0,026
PTH (pg/ml)	205±229	50±11	0,012
Calciuri (mg/24 saat)	281±125	110±50	0,000
Systolic TA (mmHg)	129±15	124±14	0,210
Diastolic TA (mmHg)	82±9	78±9	0,200
PWV (m/sn)	9,6±0,8	8,4±1,5	0,000
AIX brachial (%)	-15,8±31,2	-26,6±20,3	0,164
CIMT (μm)	601±91	541±65	0,006

Discussion

This result shows the importance of cardiovascular risk evaluation while making decision for treatment of primary hyperthyroidism patients and the need for earlier judgment makings for effective treatment options like surgery.

References

- 1- Neunteufl T, Heher S, Prager G, Katzenschlager R, Abela C, Niederle B, et al. Effects of successful parathyroidectomy on altered arterial reactivity in patients with hypercalcaemia: results of a 3-year follow-up study