Cardiovascular Effects of Obstructive Sleep Apnea Syndrome (OSAS) on Acromegaly

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OBJECTIVES

Acromegaly is known to be associated with obstructive sleep apnea syndrome (OSAS) in about 60-70% of the cases. Both OSAS and acromegaly are thought to be responsible from cardiovascular diseases and endothelial dysfunction. However, it is not known whether OSAS negatively influences acromegaly induced changes in cardiac or endothelial functions. The aim of the present study was to investigate the role of OSAS on cardiovascular effects of acromegaly.

METHODS

25 patients with acromegaly and 7 healthy volunteers were enrolled into the study. Cardiac and endothelial functions were evaluated with echocardiography (ECHO), carotis intima-media thickness (CIMT), aortic stiffness and flow mediated dilatation (FMD). All subjects were performed polysomnography (PSG). Patients were categorized into 3 groups according to their apnea-hypopnea index (AHİ) found in PSG. An AHİ of <5 was accepted as normal, >15 as OSAS and between 5-15 as borderline.

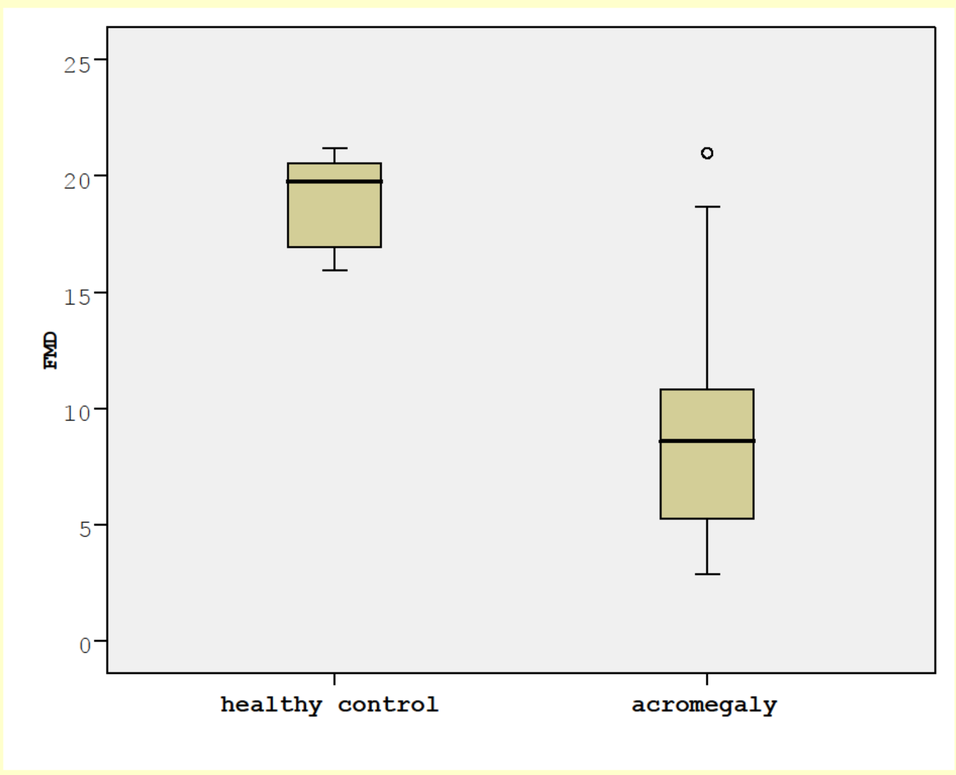

Figure 1: FMD values of healthy control and acromegaly

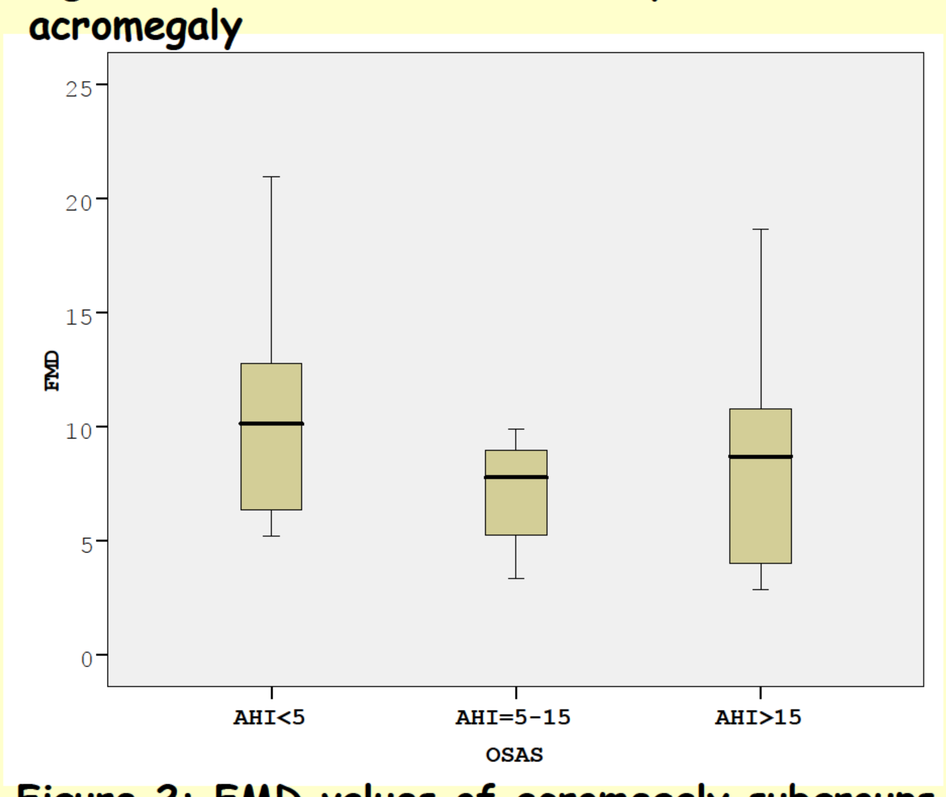

Figure 2: FMD values of acromegaly subgroups according to AHI

Table 1: ECHO parameters, CIMT and FMD of acromegalic patients and healthy controls

	Acromegaly n=25	Healthy control n=7	p
LVSD (mm)	3.35±0.46	3.03±0.18	0.089
LVDD (mm)	4.99±0.46	4.61±0.17	0.051
LVEF (%)	61.36±4.38	64.57±3.86	0.095
Mitral E wave (mSec)	0.61±0.13	0.55±0.24	0.418
Mitral A wave (mSec)	0.60±0.17	0.54±0.21	0.427
Mitral E/A	1.12±0.52	1.12±0.55	0.999
Aortic stiffness	7.44±3.67	9.12±3.98	0.315
CIMT (mm)	0.07±0.02	0.22±0.21	0.682
FMD (%)	8.90±4.73	18.83±2.17	<0.001

Table 2: ECHO parameters, CIMT and FMD of acromegalic patients and healthy controls

	AHI<5 n=8	AHI=5-15 n=7	AHI>15 n=10	p
LVSD (mm)	3.44±0.67	3.44±0.67	3.25±0.33	0.646
LVDD (mm)	5.08±0.62	5.08±0.62	4.89±0.34	0.642
LVEF (%)	63.14±6.25	59.00±2.00	61.30±3.36	0.283
Mitral E wave (mSec)	0.66±0.14	0.57±0.08	0.58±0.14	0.348
Mitral A wave (mSec)	0.47±0.18	0.63±0.19	0.68±0.11	0.046
Mitral E/A	1.32±0.29	1±0.44	0.88±0.24	0.051
Aortic stiffness	9.61±4.56	5.89±1.34	6.62±3.29	0.315
CIMT (mm)	0.07±0.02	0.09±0.02	0.07±0.01	0.025
FMD	10.66±5.60	7.06±2.71	8.59±4.87	0.425

RESULTS

10 (40%) patients were found to have OSAS, 7 (28 %) had borderline AHİ and 8 (32%) patients were normal. No differences were found between acromegaly and healthy controls in means of CIMT, aortic stiffness and ECHO parameters (Table 1). FMD was found to be lower in acromegalic patients (8.9±4.7%) than in healthy controls (18.8±2.2%) (Figure 1). When acromegalic patients were divided into 3 groups according to their AHI; FMD, CIMT, aortic stiffness and ECHO parameters were found to be similar in 3 acromegalic groups (Table 2) (Figure 2). No correlations were found between AHI and FMD, CIMT or aortic stiffness.

CONCLUSIONS

Acromegaly leads to endothelial dysfunction which was shown by FMD in this study. Although OSAS is frequently associated with acromegaly and is an independent cause of endothelial dysfunction and metabolic disturbances, presence of OSAS in acromegalic patients does not seem to cause further deterioration of cardiovascular or endothelial functions.

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