Artery Balloon Angioplasty and Depression Symptoms

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A B S T R A C T

Peripheral arterial occlusive disease (PAOD) as a chronic disease is associated with physical, psychological and social distress for elderly patients and their families. The study has three main aims: 1. to evaluate the occurrence and the relevance of depression symptoms in patients with PAOD, 2. to evaluate the effect of age and Fontaine stage of PAOD on relevance of depression in patients with PAOD, and 3. to evaluate the effect of artery balloon angioplasty (ABA)on occurence and relevance of depression symptoms. The study was prospective and longitudinal. Dates were obtained during year 2006. The total number of subjects with PAOD was 42 (28 males, 14 females). Thirty subjects with PAOD (20 male, 10 female) treated by ABA filled in Zung´s scale 3–6 months after ABA (61%). The mean age of all subjects was 65.4 years (aged 45–79). The evaluation of occurrence and relevance of depression was perfomed with Czech version of Zung self-rating depression scale (ZSRS). The mean Zung self-rating depression score (ZSRDS) certifies the presence of signs of minimum or mildly depression in patients with PAOD. The results proved statistically significant dependence of depression on age and on Fontaine stage of PAOD. Also, the results proved that artery balloon angioplasty has a highly positive effect on occurence and relevance of depression symptoms. The results had shown the existence of the association between PAOD, depression and ABA.

Key words: *depression, peripheral arterial oclussive disease, artery balloon angioplasty*

Introduction

Peripheral arterial occlusive disease (PAOD) is a prevalent atherosclerotic disorder characterized by exertional limb pain, loss of limb, and a high mortality rate. Risk factors for the development of peripheral atherosclerosis are the same as for coronary and cerebrovascular atherosclerosis namely diabetes mellitus, hyperlipidaemia, arterial hypertension, and smoking[1,2]. PAOD is classified in accordance with Fontaine classification on stages which they are characterized: stage I – asymptomatic, stage IIa – intermittent claudication, pain-free walking distance > 200 m, IIb (< 200 m) – intermittent claudication, pain-free walking distance < 200 m, stage IIb (< 50 m) – intermittent claudication, pain-free walking distance < 50 m, III – rest pain, IV – ischaemic lesion (ulcer, gangrene, necrosis). The treatment of PAOD is aimed not only at the disease itself, but also at the factors that cause or aggravate atherosclerotic process. The treatment should be complex, long term and oriented at optimal revascularization, elimination of rest pain and prolongation of claudication interval. It should be supportive of healing ischemic defects and must include prevention of atherosclerosis and thrombosis. There are two revascularization interventions: 1. endovascular revascularization – artery angioplasty: balloon (ABA) or stent (ASA), 2. angiosurgery – reconstruction surgery[1]. In Czech adult population is prevalence of PAOD low than 2% in men younger than 50 years and in Czech women this values occur 10 years later[1]. PAOD as a chronic disease is associated with physical, psychological and social distress for elderly patients and their families. People with PAOD have significant disability that also affects psychosocial and emotional aspects of their quality of life (QoL)[2].

Our study had three aims: 1. to evaluate the occurrence and the relevance of depression symptoms in sub-

jects with PAOD, 2. to evaluate the effect of age and Fontaine stage of PAOD on relevance of depression, and 3. to evaluate the effect of ABA on occurrence and relevance of depression symptoms 3–6 months after ABA.

Materials and Methods

Type of study

The study is prospective and longitudinal. The dates were obtained during year 2006–2007. The study was approved by the Ethics Commission of the Charles University Hospital and Faculty of Medicine in Hradec Kralove, Czech Republic.

Study population

The total number of subjects with PAOD was 42 (28 males, 14 females). All subjects had involvement of femoral and popliteal arterial circulation. The number of all subjects in accordance with Fontaine was following: intermittent claudication: stage IIa – 4, stage IIb (<200 m) – 16, stage IIb (<50 m) – 9, chronic limb ischaemia: stage III – 6, stage IV – 7 respondents. The average age of all subjects was 65.4 years (aged 45–79 years). The all subjects had involvement of femoral and popliteal arterial circulation. The number of subjects with diabetes mellitus was 26, with arterial hypertension was 34, with hyperlipidaemia was 28. The number of obese subjects with PAOD was 23 and the number of smokers was 30. The number of subjects with coronary artery disease was 10 and the number of subjects with cerebrovascular manifestations of atherothrombosis was 6. The coronary artery disease at the same time with cerebrovascular manifestations of atherothrombosis had 4 subjects. The all subjects never had revascularization operation (surgical and endovascular intervention) on peripheral arterial circulation or sympatectomy and limb amputation. Thirty subjects with PAOD (20 male, 10 female) treated by ABA filled out Zung self-rating depression scale 3–6 months after ABA (time median was 3.8 months). No patients of all 42 patients never was not treated with depression or mood distress and was not used antidepressive therapy and/or anxiolytics.
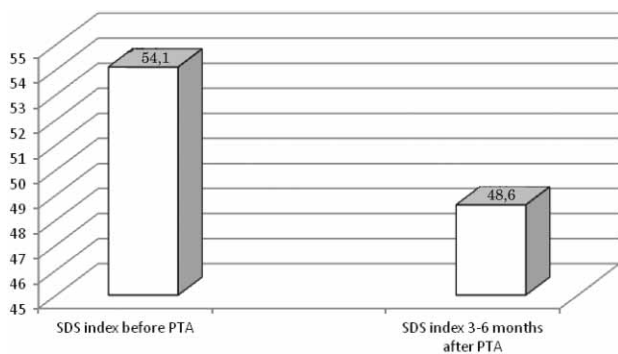

Fig. 1. *Comparison of mean values of ZSRDS (SDS index) before and 3–6 months after ABA (n=30, p<0.05).*
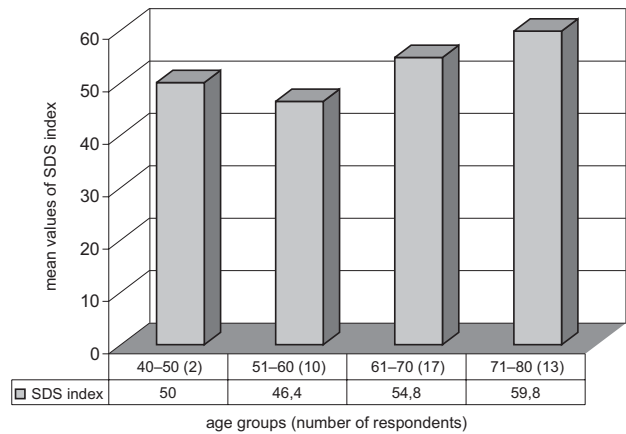

Fig. 2. *Comparison of mean values of ZSRDS (SDS index) in dependence on age groups (n=42, p<0.01).*

Measurement

The Czech version of Zung self-rating depression scale was perfomed[3]. The Zung self-rating depression scale is a short self-administered survey to quantify the depressed status of a patient. There are 20 items on the scale that rate the four common characteristics of depression: the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities. There are ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1–4 (a little of the time, some of the time, good part of the time, most of the time). The Zung self-rating depression score (ZSRDS) scores range from 25–100. 25–49 Normal Range. 50–59 Mildly Depressed. 60–69 Moderately Depressed. 70 and above Severely Depressed[3].
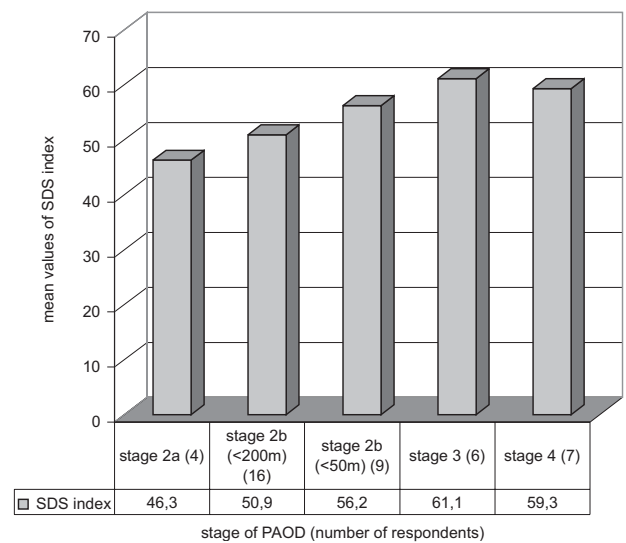

Fig. 3. *Comparison of mean values of ZSRDS (SDS index) in dependence on stage of PAOD in accordance with Fontaine classification (n=42, p<0.01).*

Procedure

The patiens were tested while hospitalized at the Department of Medicine of Charles University Hospital in Hradec Kralove, Czech Republic. The filling in the Zung self-rating depression scale was voluntary and anonymous. The patients filled out the Zung self-rating depression scale before ABA and 3–6 months after ABA during ambulatory monitoring.

Data collection, statistical methods

The dependent variable was ZSRDS. The independent variables were age, Fontaine stage of PAOD and ABA. Statistical analysis was performed by means of analysis of variance (ANOVA) and the paired t-test. P values < 0.05 were considered significant. The statistical analysis was conducted using the StatSoft Statistica Base software package, version 7.1.

Results

The statistical evaluation present that mean ZSRDS certifies the presence of signs of minimum or mildly depression in subjects with PAOD (SDS>50). The mean ZSRDS in all subjects with PAOD was 54.1. The mean ZSRDS in all subjects with PAOD 3–6 months after ABA was 48.6 (p<0.05) (see Graph 1). Also, we proved statistically significant dependence of depression in subjects with PAOD on age (p<0.01) (see Graph 2) and on Fontaine stage of PAOD (p<0.01) (see Graph 3). The mean ZSRDS in all men with PAOD was 52.8. The mean ZSRDS in all women with PAOD was 56.9.

Discussion

As far as we are informed, the results of our pilot study present the existence of the association between PAOD, depression symptoms and ABA. We think that our results correspond to that PAOD is really linked to psychological and social distress. The patients with PAOD have significant disability that also affects psychosocial and emotional aspects of their QoL[7].

The results of our prospective study support Mc Dermott's[4], Cherr's[5] and Al-Ruzzeh's work[6]. In Mc Dermott's study[4], four hundred twenty-three men and women with PAOD identified. The author presents that among men and women with PAOD, the prevalence of a clinically significant number of depressive symptoms is high. Greater numbers of depressive symptoms are associated with greater impairment in lower extremity functioning[4]. In Cherr´s study[5], two hundred fifty-seven consecutive patients undergoing lower extremity revascularization for symptomatic PAOD at a single institution were included in this study. The author presents that 35% patients had

been diagnosed with depression, at revascularization. Those with depression were significantly younger and more likely to use tobacco[5]. Depression is common among patients undergoing revascularization for symptomatic PAOD. After intervention, patients with depression are at significantly increased risk for coronary heart disease events and progression of contralateral PAOD[5]. In Al-Ruzzeh's study[6], the records of 75 consecutive patients who underwent minimally invasive direct coronary artery bypass (MIDCAB) at Harefield Hospital between April 2000 and January 2002 were reviewed retrospectively. Health-Related Quality of Life (HRQoL) assessment was planned in a cross-sectional design. Patients were contacted by telephone to conduct a semi-structured interview and were sent two questionnaires: the Short Form Health Survey (SF-36) and the Hospital Anxiety and Depression Scale (HADS). The SF-36 scores were compared to an age-matched group of normal British people. The MIDCAB group had an excellent general health perception compared to the normal group (p<0.001), but similar scores otherwise. The HADS scores showed that only 1 patient (1.3%) had mildly depression, 5 patients (6.7%) had mildly anxiety, and 2 patients (2.6%) had moderate anxiety[6].

Finally we can alledge, that very little is known about the relationship between endovascular intervention with ABA performed in patients with PAOD and occurence of depression symptoms in Czech Republic. This issue has been studied in other countries during the 1980s in connection the early methods of measuring the QoL.

We are also aware of the fact that our study can be limited by a few other factors: 1. the relatively small number of our patients with PAOD tretaed by ABA, 2. the relatively short period after endovascular intervention, 3. monitoring of the impact of multiple independent factors on symptom sof depression, ie. smoking abuse, associated diseases, sex.

Conclusion

Our findings are contribution for angiologists and general practitioners because this physicians must think and also diagnose of depression symptoms or mood distress in this cohort of patients. They are must know treat depression or this antidepressive treatment secure by clinical psychologist or psychiatrist.

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BALON ANGIOPLASTIKA ARTERIJE I SIMPTOMI DEPRESIJE

SAŽETAK

Periferna okluzivna arterijska bolest (POAB) kao kronična bolest povezana je s fizičkim, psihološkim i socijalnim poteškoćama za starije pacijente i njihove obitelji. Ova studija ima tri cilja: 1. procijeniti pojavnost i važnost simptoma depresije u pacijenata oboljelih od POAB-a, 2. procijeniti utjecaj godina i Fontaine stupanj POAB-a na depresiju kod pacijenata oboljelih od POAB-a, 3. procijeniti utjecaj balon angioplastike arterije (PTCA) na učestalost i relevantnost simptoma depresije. Studija je bila perspektivna i longitudinalna. Datumi su prikupljeni tijkom 2006. godine. Ukupni uzorak oboljelih od POAB-a bio je 42 (28 muškaraca, 14 žena). Trideset ispitanika oboljelih od POAB-a (20 muškaraca, 10 žena) liječenih sa PTCA popunili su Zungovu skalu 3–6 mjeseci nakon PTCA-a (61%). Prosječna starost ispitanika je 65,4 godine (dob 45–79). Evaluacija učestalosti i relevantnosti depresije izvedena je s češkom verzijom Zungove samo-procjenjujuće skale za depresiju. Srednja vrijednost Zungove samoprocijenjujuće skale označava prisutnost minimalne do srednje depresije u pacijenata oboljelih od POAB-a. Rezultati su dokazali statistički značaju ovisnost depresije s obzirom na dob i Fontaine stupanj POAB-a. Također, rezultati su pokazali kako balon angioplastika arterije ima visoko pozitivni učinak na nastanak i relevantnost simptoma depresije. Rezultati su pokazali postojanje povezanosti između POAB-a, depresije i PTCA.