

ARTERY BALLON ANGIOPLASTY AND DEPRESSION: FINDINGS OF PROSPECTIVE, LONGITUDINAL STUDY

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Summary

Background: Peripheral arterial occlusive disease (PAOD) as a chronic disease is associated with physical, psychological and social distress for elderly patients and their families. **Aims:** The study has two main aims: 1. To evaluate the occurrence of depression in patients with PAOD, 2. To evaluate the effect of percutaneous transluminal balloon angioplasty on occurrence of depression. **Material and methods:** The study was local, prospective and longitudinal. Data were obtained during 2006. The total number of subjects with PAOD was 42 (28 males, 14 females). The average age of all subjects with PAOD was 65.4 years (aged 45–79 years). The evaluation of depression occurrence was performed by means of Zung self-rating depression score (SDS). **Results:** The mean SDS certifies the presence of signs of minimum or light depression in patients with PAOD. We proved statistically significant dependence of depression in patients with PAOD on age and on Fontaine stage of PAOD. The results showed that percutaneous transluminal balloon angioplasty had a highly positive effect on occurrence of depression in patients with PAOD. **Conclusion:** The results have shown the existence of the association between PAOD, depression and percutaneous transluminal balloon angioplasty.

Key words: Depression; Peripheral arterial occlusive disease; Percutaneous transluminal balloon angioplasty.

Balónková angioplastika a deprese: výsledky prospektivní, longitudinální studie

Souhrn

Úvod: Ischemická choroba tepen dolních končetin (ICHDK) je chronické onemocnění charakterizované somatickými, psychickými a sociálními problémy nejen u samotných nemocných, ale i jejich rodinných příslušníků. **Cíle.** Studie má 2 hlavní cíle: 1. zhodnotit výskyt deprese u nemocných s ICHDK, 2. zhodnotit vliv balónkové angioplastiky na výskyt deprese u nemocných s ICHDK. **Materiál a metodika:** Studie je lokální, prospektivní, longitudinálního charakteru. Data byla získána v průběhu roku 2006 od nemocných hospitalizovaných na Oddělení klinické hematologie II. interní kliniky FN Hradec Králové za účelem provedení endovaskulární intervence pomocí perkutánní transluminální balónkové angioplastiky (PTBA). Celkový počet respondentů byl 42 (28 mužů, 14 žen). Průměrný věk všech respondentů byl 65,4 roku, věkové rozmezí bylo 45 až 79 let. K hodnocení výskytu deprese u nemocných s ICHDK byla použita česká verze Zungovy sebeposuzovací škály deprese. Statistické zpracování dat bylo provedeno analýzou rozptylu ANOVA. **Výsledky:** Statistická hodnocení ukazují, že průměrná hodnota SDS skóre (Zungovo skóre deprese) potvrzuje přítomnost známek minimální či lehké deprese u nemocných s ICHDK. Výsledky studie ukazují, že PTBA má pozitivní efekt na výskyt deprese u nemocných s ICHDK. **Závěr:** Výsledky studie ukazují, že existuje asociace mezi ICHDK, depresí a PTBA.

Klíčová slova: Deprese; Ischemická choroba dolních končetin; Perkutánní transluminální balónková angioplastika.

Introduction

Peripheral arterial occlusive disease (PAOD) is a prevalent atherosclerotic disorder characterized

by exertional limb pain, loss of limb, and a high mortality rate. In Czech adult population is prevalence of PAOD lower than 2% in men younger than 50 years and in Czech women this values

occur 10 years later (1). Intermittent claudication is the most common symptom in patients with PAOD (2). 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 (3). PAOD is classified in accordance with Fontaine classification on stages which are characterized (1, 2): 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 III (< 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 support healing ischemic defects and must include prevention of atherosclerosis and thrombosis. There are two revascularization interventions: 1. endovascular revascularization – percutaneous transluminal angioplasty (PTA): balloon or stent, 2. angiosurgery – reconstruction surgery (1).

PAOD as a chronic disease is associated with physical, psychological and social distress for elderly patients and their families (4). People with PAOD have significant disability that also affects psychosocial and emotional aspects of their quality of life (QoL) (3). QoL term contains the information on an individual's physical, psychological, social and spiritual condition. QOL evaluation is carried out by means of generic and specific QOL questionnaires (3).

The study has three aims: 1. evaluates the occurrence of depression in patients with PAOD, 2. evaluates effect of age and Fontaine stage of PAOD on gravity of depression in patients with PAOD, 3. evaluates the effect of percutaneous transluminal balloon angioplasty on occurrence of depression.

Material and methods

A local, prospective and longitudinal study was carried out on 2nd Department of Medicine of Charles University Hospital and Faculty of Medicine in Hradec Kralove, Czech Republic in subjects with PAOD which they were admitted for hospitalization for fe-

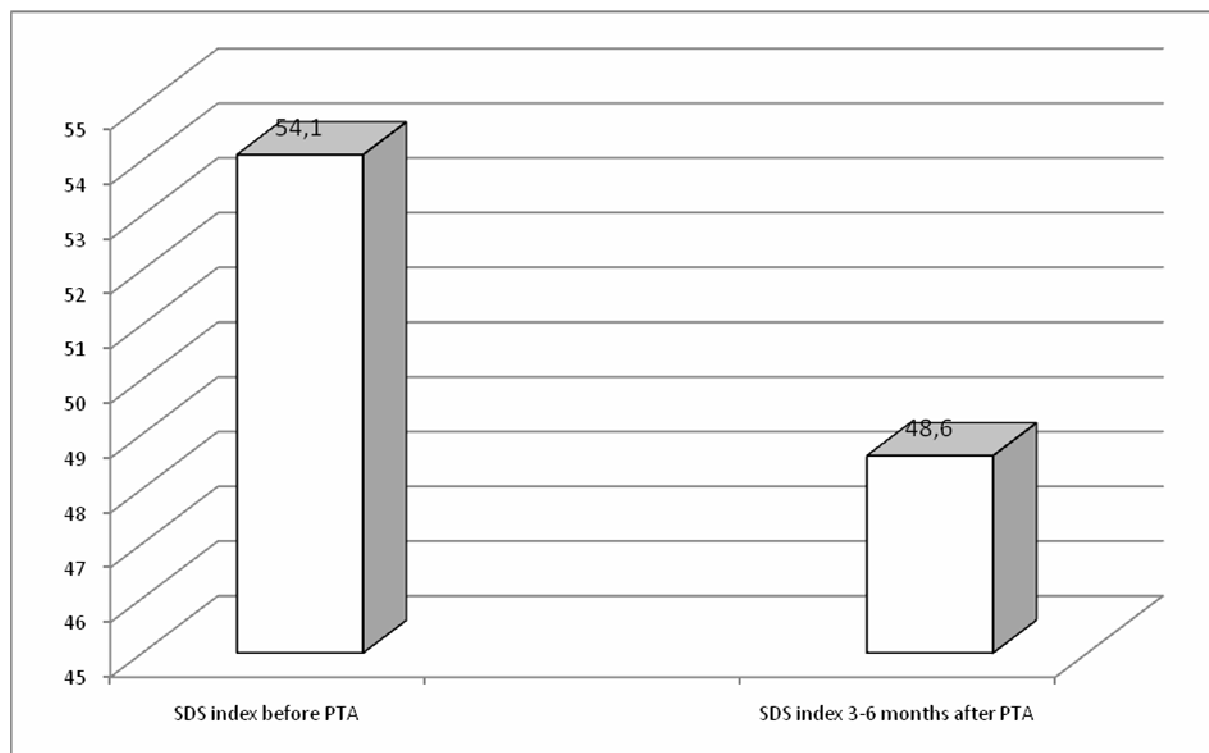
moral and popliteal artery balloon angioplasty during 2006 (January 1st 2006–June 30th 2006).

The evaluation of occurrence of depression in subjects with PAOD was performed with Zung–self-rating depression score (SDS) (5). The self-assessment Zung-SDS was applied for evaluation of occurrence of depression in these subjects. 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 carried out using the StatSoft Statistica Base software package, version 7.1.

Results

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 IIIb (< 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 number of subjects with diabetes mellitus was 26, with arterial hypertension 34, and with hyperlipidaemia 28. The obese subjects were 23 and thirty smokers. The number of subjects with coronary artery disease was 10 and with cerebrovascular manifestations of atherothrombosis was 6. Four subjects had the coronary artery disease at the same time with cerebrovascular manifestations of atherothrombosis. All subjects never had revascularization operation (surgical and endovascular intervention) on peripheral arterial circulation or sympathectomy and limb amputation. Thirty subjects of 42 all subjects with PAOD (20 male, 10 female) completed Zung's depression scale 3–6 months after percutaneous transluminal balloon angioplasty.

The statistical evaluation presents that mean SDS (self-rating depression score) certifies the presence of signs of minimum or mildly depression in subjects with PAOD (SDS > 50). The mean SDS in all subjects with PAOD was 54.1. The mean SDS in all subjects with PAOD 3–6 months after percutaneous transluminal balloon angioplasty was 48.6 ($p < 0.05$) (see Graph 1). We proved statistically significant dependence of depression in subjects with PAOD on age and on Fontaine stage of PAOD ($p < 0.01$). The mean SDS in all men with PAOD was 52.8. The mean SDS in all women with PAOD was 56.9.



Graph 1: Comparison of mean values of SDS before and 3-6 months after percutaneous transluminal balloon angioplasty ($n = 30$, $p < 0.05$)

Discussion

The relationship between psychopathology and cardiovascular diseases is proved for type of personality and emotional reactivity. The global dates for problem of psychopathology among patients with PAOD are missing (3). As far as we are informed, partial findings of our pilot depression study present the existence of the association between PAOD and depression. We think that our results correspond to that PAOD is a chronic disorder characterized by exertional limb pain, loss of limb, and a high mortality rate and because of its chronic nature, it often has a negative impact on patients. 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.

We think that our results correspond to that of PAOD as a chronic disorder characterized by exertional limb pain, loss of limb, and a high mortality rate and because of its chronic nature, it often has a negative impact on patients psychic condition. PAOD as a chronic disease is associated with physical,

psychological and social distress for elderly patients and their families (6–8). Individuals with PAOD have significant disability that also affects psychosocial and emotional aspects of their quality of life (QoL) (6–8).

Endovascular intervention with percutaneous transluminal balloon angioplasty significantly decreased occurrence of depression in subjects with PAOD ($p < 0.05$) even after short period after treatment (3–6 months after percutaneous transluminal balloon angioplasty). The mean SDS before endovascular intervention was 54.1 and the mean SDS 3–6 months after endovascular intervention was 48.6.

Finally we can allege, that in the Czech Republic, very little is known about the relationship between endovascular intervention with percutaneous transluminal balloon angioplasty performed in patients with PAOD and occurrence of depression symptoms. This issue has been studied in other countries during the 1980s in connection with 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: the relatively small number of our patients with PAOD and the relatively short period after endovascular intervention.

Conclusion

The results of our pilot depression study are beneficial to angiologists and general practitioners. The physicians have to diagnose symptoms of depression in this cohort of patients. They have to know how to treat depression or they have to refer these patients to clinical psychologists or psychiatrists for antidepressive treatment.

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