

INFLUENCE OF ENVIRONMENT ON THE EVOLUTION AND RECURRENCE OF CHRONIC VENOUS INSUFFICIENCY

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REZUMAT. Insuficiența venoasă cronică reprezintă o cauză frecventă de morbiditate în societatea modernă, afectând până la 80% din populația activă. Diversi autori au raportat rate de recidivă de până la 30% după 5 ani. Scopul acestui studiu a fost de a analiza importanța factorilor de mediu asupra recidivei bolii varicoase. În acest scop am urmărit un număr de 2055 pacienți (cu 2985 membre inferioare tratate), operați de către aceeași echipă chirurgicală în compartimentul de flebologie al Clinicii I Chirurgie Timișoara, în perioada 01.2001-12.2010. Toți pacienții au fost analizați în privința caracteristicilor (sex, vârstă, greutate, factori de risc asociați și factori de mediu), încercând să determinăm importanța fiecărui factor. Toți acești factori de risc sunt studiați și discutați în prezenta lucrare.

Cuvinte cheie: insuficiență venoasă cronică, mediu, factori de risc.

ABSTRACT. Chronic venous insufficiency represents a frequent cause of morbidity in modern times, affecting up to 80% of the active population. Recurrence rates of up to 30% after a 5 year follow-up are reported by various authors. The aim of our study was to analyze the importance of environment factors and lifestyle on the recurrence of varicose disease after classical surgical treatment. We studied and analyzed 2055 patients (2985 treated legs) with chronic venous insufficiency, which were operated by the same surgical team in the period 01.2001-12.2010 in the Department of Phlebology of the First Surgical Clinic, County Hospital Timișoara. All patients with recurrent varicose disease were analyzed regarding sex, age, weight, associated risk factors and environmental factors, and we tried to determine the importance of each risk factor. The identified risk factors are analyzed and discussed in the current paper.

Keywords: chronic venous insufficiency, environment, risk factors.

1. INTRODUCTION

Chronic venous insufficiency represents a frequent cause of morbidity, with over 10.000 surgical procedures requiring over 40.000 hospitalization days being performed in 2010 in our country [1]. Long-term results of the lower limb varicose disease treatment show an increased number of recurrences: 5-30% in the first 5 years after surgery and more than 50% after 5 years[2].

While the risk factors for chronic venous insufficiency (age, lifestyle, environment, family history, female gender, pregnancies) have been studied on several populational studies, the cause of recurrence is still debatable[3]. Some authors consider incorrect surgical techniques or recurrence due to neo-vascularization to be the cause of relapse of the disease, but literature is still controversial [4, 5].

2. AIM OF THE STUDY

The aim of our study was to analyze the importance of environment factors and lifestyle on the recurrence of varicose disease after classical surgical treatment.

3. METHODOLOGY

We studied and analyzed 2055 patients (2985 treated legs) with chronic venous insufficiency, which were operated by the same surgical team in the period 01.2001-12.2010 in the Department of Phlebology of the First Surgical Clinic, County Hospital Timișoara (Fig. 1).

All patients were scheduled for a follow-up examination at 3 and 6 month postoperative, than

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every 6 month for the first 2 years, then yearly. At every follow-up appointment we did a clinical examination of the patients and ultrasound examination of the lower limbs.

Out of the 2055 initially treated patients only 721 patients completed the follow-up and were included in our study. During the follow-up period of 8.53 ± 3.34 years we identified 311 patients with recurrent venous disease which were included in the study group. The other 410 patients were included in the control group. All patients with recurrent varicose disease were analyzed regarding sex, age, weight, associated risk factors and environmental factors, and we tried to determine the importance of each risk factor. The results were compared with the control group.

Data was analyzed using Windows XP SP2 operating system and the Graphpad InStat 3.0 statistics program. Differences were considered statistically significant if P value ≤ 0.05 .

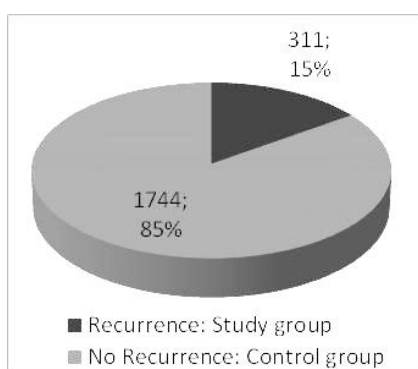


Fig. 1. Recurrence rate after surgical treatment in general population.

4. RESULTS AND DISCUSSIONS

In the case of obese patients we noticed a significantly higher recurrence rates (Table 1). These patients have a hypertension at the level of the inferior vena cava and the iliac veins, which causes venous stasis of the lower limbs.

In the case of patients with a high BMI the surgical procedure is more difficult to perform and requires a more extensive dissection, favoring the vascular neoangiogenesis.

One of the most significant environmental risk factors for relapse of venous disease is the profession of the patient (Table 1). It is already described that venous disease occurs more often in patients with a job that implies a prolonged standing position. The determinant factor is the gravitational acceleration.

In professions which imply hard labor the favoring factor is the increase of intraabdominal pressure caused by the hard work.

Table 1. Parameters and values for scattering coefficients

Factor	Study Group	Control Group	P
Completed initial treatment	100%	42,44%	**
Sex M/F	365/410	244/311	
Age	56,7	61,8	
Age at onset of disease	33,5	25,7	**
Weight (bmi)	26,7	33,5	*
Urban/rural	315/410	256/311	*
Bilateral disease	253/410	204/311	
Compression stockings	307/410	103/410	**
Family history	321/410	262/311	*
Working in standing position	95/410	202/311	**
Difficult labor	20/410	145/311	**
Working in excessive heat	2/410	27/311	**
Extreme sports	2/410	14/311	*
Neo-angiogenesis	0	103/311	-

During extreme sports the venous circulation is sometimes stalled due to the short, repeated contractions which cause increase of the venous pressure.

Another environmental factor is extreme thermal heat (bakers, metal workers).

Compared to the primary treatment, recurrent venous disease is more expensive to treat, it generally requires multiple and more expensive surgical interventions.

Due to lack of patient compliance a recurrent chronic venous insufficiency is often diagnosed with delay, in more advanced stages requiring a more complex treatment.

A thorough post-operative follow-up of the patients with regular ultrasound control can detect the recurrences in time, allowing for a more simpler, cheaper treatment.

The best secondary prevention of chronic venous insufficiency is a correct and complete primary treatment of the disease.

Due to the variability, the clinical polymorphism and the progressive character of chronic venous insufficiency the surgeon needs to use several treatment methods, in order to guarantee a complete treatment of the disease from the beginning, because the suboptimal or incomplete treatment is a sure cause of recurrence.

Despite the current medical advances in phlebology, chronic venous insufficiency remains still a progressive disease, so it is necessary to inform the patient regarding the necessity of the follow-up care after primary treatment.

5. CONCLUSIONS

A complete clinical and ultrasound examination is mandatory before starting the treatment of a

patient. Without this evaluation a correct a complete primary treatment of chronic venous insufficiency is not possible.

The most frequent cause of recurrence of venous disease is a incomplete treatment combined with the patients lack of compliance.

Although several mechanisms are involved, besides incorrect treatment and patients incomppliance the environmental factor play a significant role in recurrence of chronic venous insufficiency. Due to the diversity of mechanisms and aspects of this disease a multimodal therapy is mandatory, which should also address the environmental factors.

REFERENCES

- [1] http://drg.ro/inc/2010/an_2010/DRG/01_National/IM_DRG_NATIONAL__1.1.2010_31.12.2010.pdf, accesed on 01.05.2013.
- [2] Measures R.M., *Laser Remote Sensing. Fundamentals and Applications*, Krieger Publishing Company, Malabar, Florida, 1992
- [3] Beebe-Dimmer JL, Pfeifer JR, Engle JS, Schottenfeld D. *The epidemiology of chronic venous insufficiency and varicose veins*. Ann Epidemiol. 2005 Mar; 15(3):175-84.
- [4] Scott T E, LaMorte W W, Gorin D R, Menzoian J O. *Risk factors for chronic venous insufficiency: a dual case-control study*. J Vasc Surg. 1995;22:622-628.
- [5] Jawien A. *The Influence of Environmental Factors in Chronic Venous Insufficiency*. Angiology July 2003 54: S19-S31