Research Article

CHRONIC VENOUS INSUFFICIENCY IN PATIENTS WITH DIFFERENT ETHNIC ORIGINS

Emin Can Ata and Metin Onur Beyaz

Medipol Mega University Hospital, Department of Cardiovascular Surgery, Bagcilar, Istanbul, Turkey

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ABSTRACT

Advanced age, gender, family history, obesity, and some special occupations are known to be risk factors for chronic venous insufficiency (CVI). However, the development of CVI in different ethnic groups has not been adequately researched. The study aims to evaluate the disease in different ethnic origins. This retrospective study was carried out between January 2018 and 2019 at Ümraniye Training and Research Hospital in Istanbul. A total of 250 Syrian immigrants and an equal number of Turkish natives with the findings of venous insufficiency were analyzed by the clinical and Duplex data. All the selected participants were at the age of 20 to 65 years. Treatment options of the persistent reflux in the superficial venous system were also investigated. Patients with a peripheral arterial disease (Ankle-brachial index < 0.80) and deep vein thrombosis were excluded from the study. The mean age was 47.6±12 years, the female was 306 (61.2%). The two groups have similar characteristics and similar risk factors. The saphenous-femoral junction diameter of the two groups was similar (8.61±2.3 vs 8.42±2.7, P=0.109). A total of 167 (33.4%) patients have great saphenous vein insufficiency, and this was not statistically significant (31% vs. 36%, P=0.218). Syrian immigrants were found to be under higher risk of unilateral and bilateral deep vein insufficiency than Turkish natives (P=0.021, OR:1.79, 95% CI:1.09-2.93, and P=0.018, OR:1.54, 95% CI:1.08-2.21, respectively). The venous ulcer rates were slightly higher in Syrian immigrants (8.0% vs. 5.6%, P=0.289). These can be explained by chronic stress and associated inflammatory response.

INTRODUCTION

In the last decade, Syrian and other Middle East people have migrated to neighboring countries due to the current political and ethnic problems in the region. Millions of Syrian citizens were forced to migrate to neighboring countries. About 3.5 million Syrian immigrants within the borders of Turkey were detected. The necessary health care was provided to the immigrants by Turkish government.\textsuperscript{1,3}

Chronic venous insufficiency (CVI) is a disease that begins with telangiectasias and manifests with pain, cramps, limb restlessness, edema, itching, skin discoloration, and venous ulcers.\textsuperscript{4} The lower limb venous system is divided into three groups as deep, superficial, and perforating venous system. Venous pressure increases when valve failure and venous obstruction occurs, or when the muscle pump is not working properly. Rising pressure causes the transition of intravascular fluid to the interstitial space.\textsuperscript{5} This fluid stasis also causes color change and ulcer development. This disease’s complications negatively affect the quality of life and socio-economic status.\textsuperscript{5}

CVI is seen in approximately 5-30% of the adult population and affects 40% of the general population.\textsuperscript{6} Chronic venous insufficiency is seen in women between 50-60%. This rate was found between 40-45% in men.\textsuperscript{7} Advanced age, gender, family history, obesity, and heavy working conditions are known to be risk factors for chronic venous insufficiency. However, the development of chronic venous insufficiency in different ethnic groups has not been adequately researched.\textsuperscript{6,11}

This study aimed to find out and compare the incidence and severity of the chronic venous insufficiency in different ethnic origins.

PATIENTS AND METHODS

Ethical consideration

This retrospective study waived ethical approval, the hospital authority and all of the authors accepted the study results and approved the publication.
Study design
This study included 500 patients who applied to the outpatient clinic with signs of venous insufficiency between January 2018 and 2019. The study group consisted of 250 Syrian immigrants, and the control group also included equal number of Turkish natives who applied to the same clinics and during the same time periods. All the participants were selected among 20 to 65 years old patients. Who have peripheral arterial disease (ABI < 0.8) and previous history of deep vein thrombosis were excluded from the study. All of the patients were evaluated under ultrasound color flow imaging (CFI). Radiofrequency ablation procedure was applied to patients who had persistent reflux in the superficial venous system and with a sizeable saphenous vein diameter> 5.5 mm, whether or not deep venous insufficiency was present. Patients had deep venous insufficiency continued to receive compression stockings after the procedure.

Statistical analysis

Statistical analysis was performed with the SPSS version 24.0 program (SPSS Inc. Chicago IL, USA): The normal distribution of the variables was examined by histogram graphs and the Kolmogorov-Smirnov test. Mean ± standard deviation values were used to present descriptive analyzes. Pearson Chi-Square and Fishers Exact Tests were compared with 2x2 tables. While normally distributed (parametric) variables were evaluated among the groups, Student T-test was used. Mann Whitney U Test was used to evaluate nonparametric variables. Logistic regression tests were performed to find odds ratio. P-values below 0.05 were evaluated as statistically significant results.

RESULTS

The mean age was 47.6±12 years, the female was 306 (61.2%). The two groups have similar characteristics and similar risk factors for venous insufficiency (Table 1).

Table 1 Patient characteristics of the two different nationality

<table>
<thead>
<tr>
<th></th>
<th>Turkish (N=250)</th>
<th>Syrian (N=250)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>48±11.7</td>
<td>47±12.5</td>
<td>0.239</td>
</tr>
<tr>
<td>Female</td>
<td>145 (58%)</td>
<td>161 (64.4%)</td>
<td>0.142</td>
</tr>
<tr>
<td>Family history</td>
<td>34 (13.6%)</td>
<td>21 (8.4%)</td>
<td>0.066</td>
</tr>
<tr>
<td>Multiple child birth</td>
<td>37 (14.8%)</td>
<td>50 (20%)</td>
<td>0.126</td>
</tr>
<tr>
<td>Obesity</td>
<td>47 (18.8%)</td>
<td>61 (24.4%)</td>
<td>0.129</td>
</tr>
<tr>
<td>Smoker</td>
<td>94 (37.6%)</td>
<td>77 (30.8%)</td>
<td>0.110</td>
</tr>
<tr>
<td>Hypertension</td>
<td>18 (7.2%)</td>
<td>25 (10%)</td>
<td>0.266</td>
</tr>
<tr>
<td>Sedentary life</td>
<td>53 (21.2%)</td>
<td>67 (26.8%)</td>
<td>0.143</td>
</tr>
<tr>
<td>Symptomatic</td>
<td>76 (30.4%)</td>
<td>89 (35.6%)</td>
<td>0.217</td>
</tr>
</tbody>
</table>

The sapheno-femoral junction diameter of the two groups were also similar (8.61±2.3 vs 8.42±2.7, P=0.109). A total of 167 (33.4%) patients have great saphenous vein (GSV) insufficiency. When compared between the groups, no statistical differences were found (31% vs. 36%, P=0.218). There were overall of 79 (15.8%) unilateral deep vein insufficiency and 202 (40.4%) bilateral deep vein insufficiency among the groups. The statistical analysis revealed that the Syrian immigrants were under higher risk of deep vein insufficiency than Turkish natives (P=0.021, OR:1.79, 95% CI:1.09-2.93, and P=0.018, OR:1.54, 95% CI:1.08-2.21, respectively). But the higher rate of venous insufficiency did not result in venous ulcer, since the venous ulcer rates were not statistically significant although the incidence was higher in Syrian migrants (8.0% vs. 5.6%, P=0.289) (Table 2.).

After the initial assessment of DUS, a total of 78 (15.6%) patients underwent radiofrequency (RF) ablation to GSV, 27 (5.4%) patients were treated surgically, whereas 221 (44.2%) patients were taken to medical treatment. The treatment options among the groups were not statistically significant also (P>0.05) (Table 2.)

Table 2 Duplex ultrasound findings and treatments

<table>
<thead>
<tr>
<th></th>
<th>Turkish (N=250)</th>
<th>Syrian (N=250)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saphenous vein diameter (mm)</td>
<td>8.61±2.3</td>
<td>8.42±2.7</td>
<td>0.109</td>
</tr>
<tr>
<td>Saphenous vein insufficiency</td>
<td>77 (31%)</td>
<td>90 (36%)</td>
<td>0.218</td>
</tr>
<tr>
<td>Deep vein insufficiency</td>
<td>30 (12%)</td>
<td>49 (19.6%)</td>
<td>0.021</td>
</tr>
<tr>
<td>Bilateral venous insufficiency</td>
<td>88 (35.2%)</td>
<td>114 (45.6%)</td>
<td>0.018</td>
</tr>
<tr>
<td>Venous ulcer</td>
<td>14 (5.6%)</td>
<td>20 (8.0%)</td>
<td>0.289</td>
</tr>
<tr>
<td>Saphenous vein ablation</td>
<td>43 (17.2%)</td>
<td>35 (14%)</td>
<td>0.325</td>
</tr>
<tr>
<td>Surgical intervention</td>
<td>16 (6.4%)</td>
<td>11 (4.4%)</td>
<td>0.567</td>
</tr>
<tr>
<td>Medical treatment</td>
<td>102 (40.8%)</td>
<td>119 (47.6%)</td>
<td>0.126</td>
</tr>
</tbody>
</table>

DISCUSSION

Since the civil war broke out in Syria in 2011, millions of Syrian citizens have been forced to emigrate. Asylum-seekers living outside of campsites are more numerous and generally have more difficulty in getting health care. Several worldwide studies have been reported about CVI development, risk factors, and progression. Few data are comparing the development of venous disease and ethnic differences. In one of these studies, Caucasian and African-American people were compared. Most studies based on ethnicity focuses on peripheral arterial disease and abdominal aortic aneurysms.

The definition of chronic venous insufficiency includes solo or the co-existence of superficial, deep, or perforating venous insufficiency states. It affects a significant proportion of the adult population. In western societies, almost 2% of the total health budget is devoted to treating chronic venous insufficiency. In patients with CVI, there is a wide range of clinical signs from telangiectasia to venous ulcers. Identification of patients and timely intervention of these patients positively affect clinical outcomes. A study conducted in the United States was reported that the treatment budget allocated to complicated CVD patients is around 3 billion dollars annually. Another study presented at the Pacific Venous Symposium aimed to reveal the genetic basis of racial tendencies and raise awareness in terms of early intervention.

Complex factors that include over-expression of the inflammatory response such as socioeconomic status, having trouble access to health care, and poor lifestyle (bad eating habits, smoking) may be responsible for different results in societies with different ethnic origins. Studies are reporting that CVI incidence depends on patient, hospital, and doctor factors in different ethnic populations. Although it has not
been revealed with a scientific study yet, the frequency of cardiovascular disease is widespread among Syrian immigrants. The high blood cortisol level and low cortisol response measured in Syrians under intense stress can explain this.\textsuperscript{20} In Syrians, the high rate of continuous reflux in the deep venous system can be explained by chronic stress and associated inflammatory response.

CVI is a progressive disease with severe consequences. In advanced stages, venous ulcers can be seen. This situation may bring severe socioeconomic losses. In our study, susceptibility to the development of venous insufficiency was higher in Syrians. Ethnicity differences are also a situation that should be taken into consideration to prevent socioeconomic losses and minimize the cost and workforce allocated for treatment.

**CONCLUSION**

Syrian migrants have higher rate of deep venous system reflux and bilateral venous insufficiency than Turkish natives. It can be explained by chronic stress and associated inflammatory response. This imbalance requires the host country to allocate more health budgets to immigrants. This study is the first study comparing Syrian migrants and Turkish citizens in our country, we believe that further studies will be needed.

**Conflict of interest**

We declare no conflictof interest in this study.

**Funding**

We did not receive any funding during the study.

**References**


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**How to cite this article:**