CLINICAL CHARACTERISTICS OF PATIENTS DIAGNOSED WITH RETINAL VEIN OCCLUSIONS IN ALBANIA

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INTRODUCTION

Retinal vein occlusion (RVO) constitutes one of the main causes of severe visual impairment and blindness [1,2]. RVO includes central retinal vein occlusion (CRVO) and branch retinal vein occlusion (BRVO) [1,2]. The incidence and prevalence of RVO is substantially higher among elderly people, but it is a frequent cause of painless visual loss also in middle-aged individuals [3-5]. Several epidemiologic studies conducted in the past few years have convincingly demonstrated that RVO is associated with an increased risk of cardiovascular disease, particularly with hypertension, diabetes mellitus, and coronary artery disease [6-8].

Based on the Global Burden of Disease (GBD) 2010 Study, in Albania, there is evidence of an almost twofold increase in the mortality rate from cerebrovascular disease among males and about 70% increase in females [9,10]. Furthermore, in 2010, there was a twofold increase in the death rate from ischemic heart disease in both males and females compared with the year 1990 [9,10]. Also, of note, in 2010, there was a threefold increase in the death rate from diabetes in Albania in both males and females compared with 1990 [9,10].

Nonetheless, the information on the extent, predictors, as well as treatment of RVO is rather limited for Albania. As a matter of fact, there are no scientific reports informing about the incidence, prevalence and the main determinants of RVO in the Albanian population.

In this framework, the objective of this study was to describe the distribution of selected clinical characteristics of patients diagnosed with RVO in Albania, a transitional post-communist country in the Western Balkans which is currently undergoing a particularly rapid transformation including also a deep reform in the health system and health care services.

METHODS

This was a case-series study which was conducted at the Primary Health Care Center No. 2 in Tirana, the capital city of Albania, during the period 2013-2016. On the whole, during the study period, there were 44 patients diagnosed with RVO in this health center: 27 (61%) men and 17 (39%) women. The overall mean age of the patients was 69.5±11.5 years (range: 42-93 years). Median (interquartile range) was 70.5 years (60.3-77.8 years).

The diagnosis of RVO was based on signs and symptoms indicating a quick decrease and reduction of the unilateral sight; fundoscopy, which has traditionally been the method of examining the fundus at the primary health care level in Albania (an examination procedure which indicates the retinal veins that are dilated and/or tortuous, as well as the retinal hemorrhages); fluorescein angiography which constituted the main examination; and the optical coherence tomography (OCT).

Information on clinical characteristics of each patient diagnosed with RVO was also collected. The clinical information for all the patients diagnosed with RVO included the eyes affected (left, right, or both), branch retinal vein occlusion (BRVO: yes vs. no), central retinal vein occlusion (CRVO: yes vs. no), as well as the type of CRVO (ischemic vs. non- ischemic).

In all cases, the visual impairment (or, sight damage) was assessed based on a test of visual acuity, an easy method which records the values as a fraction between a numerator that represents the distance and a denominator that represents the line read in a scale of 10/10 (or 1.0, which
indicates a normal value namely no visual impairment). In our study, the range of values 0.9-0.5 was classified as a mild visual impairment; the range 0.49-0.1 was classified as a moderate visual impairment; and values <0.1 as a severe visual impairment due to the ischemic occlusion of the retinal vein.

In addition, based on a structured interview, for each study participant it was gathered information on demographic characteristics including age and sex.

The study was approved by the Faculty of Medicine in Tirana and all patients who agreed to participate in this study gave their informed consent.

Median values and the respective interquartile ranges (IQR) were calculated for the visual acuity scores for both the left and the right eyes. Conversely, absolute numbers and their respective percentages were calculated for the other clinical characteristics of the patients. Mann-Whitney U-test was used to compare the mean values of visual impairment (for both the left and the right eyes) between male and female patients diagnosed with RVO. On the other hand, Fisher’s exact test was used to assess sex-differences in the distribution of the other clinical characteristics (number of eyes affected, presence of BRVO, presence of CRVO, and type of CRVO) in the sample of patients included in this study. A p-value of ≤0.05 was considered as statistically significant in all cases. Statistical Package for Social Sciences (SPSS, version 17.0) was used for the statistical analysis.

RESULTS

Mean age in men was 71.1±10.9 years, whereas in women it was 67.0±12.4 years, with no statistically significant difference (Mann-Whitney U-test: P=0.270) [data not shown]. The distribution of clinical characteristics of the patients included in this study is presented in Table 1. Overall, the test of visual acuity for the left eyes had a median value of 0.09 (IQR: 0.01-0.38). The median value was much lower in men than in women (0.04 vs. 0.20, respectively), indicating a more severe visual impairment of the left eyes in male patients. This sex-difference for the visual impairment of the left eyes was borderline statistically significant (Mann-Whitney U-test: P=0.085). On the other hand, the difference in the median values of the test of visual acuity for the right eyes was smaller. Yet, men had a lower median value compared to women (0.06 vs. 0.10, respectively), a difference which was not statistically significant (P=0.27). The sex-pooled median value of the test of acuity for the right eyes was smaller than for the left eyes (0.06 vs. 0.09, respectively), indicating a more severe visual impairment for the right eyes in the overall sample of the patients included in this study.

On the whole, 91% of the patients had visual impairments in one eye only compared to 9% of those who had damages in both eyes. The proportion of male patients with impairments in both eyes was almost double compared to their female counterparts (11% vs. 6%, respectively), notwithstanding the lack of statistical significance for this finding. The prevalence of BRVO was substantially higher in women than in men (53% vs. 19%), a difference which was statistically significant (P=0.024). On the other hand, the prevalence of CRVO was considerably and significantly higher in male than in female patients (85% vs. 47%, respectively; P=0.015). The ischemic type of CRVO was prevalent in about 36% of the patients (41% in men vs. 29% in women, without evidence of any significant sex-differences though) [Table 1].

Table 1. Distribution of clinical characteristics in a sample of patients diagnosed with RVO during 2013-2016 in Tirana, Albania

<table>
<thead>
<tr>
<th>Clinical characteristic</th>
<th>Men (N=27)</th>
<th>Women (N=17)</th>
<th>P*</th>
<th>Total (N=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual acuity: left eye [median (IQR)]</td>
<td>0.04 (0.01-0.30)</td>
<td>0.20 (0.04-0.50)</td>
<td>0.085</td>
<td>0.09 (0.01-0.38)</td>
</tr>
<tr>
<td>Visual acuity: right eye [median (IQR)]</td>
<td>0.06 (0.01-0.30)</td>
<td>0.10 (0.04-0.45)</td>
<td>0.270</td>
<td>0.06 (0.01-0.37)</td>
</tr>
<tr>
<td>Number of eyes affected:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One eye only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both eyes</td>
<td>24 (88.9)*</td>
<td>16 (94.1)</td>
<td>0.999</td>
<td>40 (90.9)</td>
</tr>
<tr>
<td></td>
<td>3 (11.1)</td>
<td>1 (5.9)</td>
<td></td>
<td>4 (9.1)</td>
</tr>
<tr>
<td>BRVO:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>22 (81.5)</td>
<td>8 (47.1)</td>
<td>0.024</td>
<td>30 (68.2)</td>
</tr>
<tr>
<td>Yes</td>
<td>5 (18.5)</td>
<td>9 (52.9)</td>
<td></td>
<td>14 (31.8)</td>
</tr>
<tr>
<td>CRVO:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4 (14.8)</td>
<td>9 (52.9)</td>
<td>0.015</td>
<td>13 (29.5)</td>
</tr>
<tr>
<td>Yes</td>
<td>23 (85.2)</td>
<td>8 (47.1)</td>
<td></td>
<td>31 (70.5)</td>
</tr>
<tr>
<td>CRVO type:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ischemic</td>
<td>11 (40.7)</td>
<td>5 (29.4)</td>
<td>0.531</td>
<td>16 (36.4)</td>
</tr>
<tr>
<td>Non-ischemic</td>
<td>16 (59.3)</td>
<td>12 (70.6)</td>
<td></td>
<td>28 (63.6)</td>
</tr>
</tbody>
</table>

* Absolute numbers and their respective column percentages (in parentheses).
* Mann-Whitney U-test was used for the comparison of mean values of visual acuity (for both the left and the right eyes) between men and women, whereas Fisher’s exact test was employed to test sex-differences regarding the distribution of the other clinical characteristics presented in the table.
DISCUSSION

This is one of the very few scientific reports informing about the distribution of selected clinical characteristics of patients diagnosed with RVO in transitional Albania, almost three decades after the breakdown of the communist system, which constituted one of the most rigid regimes in Europe and beyond. The main findings of this study include a more severe visual impairment in men, especially damages pertinent to the left eyes, as evidenced through the application of a test of visual acuity. In addition, males with RVO in this sample of Albanian patients had a higher prevalence of CRVO compared to females. In turn, female patients had a higher prevalence of BRVO compared to their male counterparts. Overall, the ischemic type of CRVO was found in more than one-third of the patients. There are no prior scientific reports available for Albania in order to compare the findings of our study.

Based on a combined analysis of population-based data gathered at an individual level, there are about 16 million people affected by RVO globally [11]. On the other hand, the incidence of RVO during the period 2008-2011 was estimated as greater than 48 per 0.1 million person-years in the general population (all age-groups) and 136.09 per 0.1 million person-years in individuals aged ≥50 years [3,12]. It should be noted, however, that the incidence of RVO will gradually increase in line with the continuous process of population aging which is a phenomenon affecting both the industrialized and the developing/transitional countries worldwide.

This study may have some limitations related to the sample size and its representativeness. Although the study period consisted of four years, the sample size included in our analysis was modest due to the limited population’s capture area of the health center in which the study was conducted, but also due to the fact that some patients might have skipped the use of primary health care services and might have directly sought more specialized care at the University Hospital Center “Mother Teresa” in Tirana, or in private ophthalmology clinics which have flourished in the past few years in Albania. Sample size aside, the issue of representativeness of the sample included in this study may be also a cause of concern because the study was confined to a single health center of the municipality of Tirana. Therefore, our findings cannot be generalized to the overall population of Tirana and, even less so, to the overall Albanian population. On the whole, findings of this study should be interpreted with caution.

In conclusion, regardless of these potential limitations, our study provides important evidence about the distribution of selected clinical characteristics of Albanian patients diagnosed with RVO. In the future, population-based studies should be conducted in order to assess the incidence and prevalence of RVO in the Albanian general population.

Conflicts of interest: None declared

References