

Epidemiology of retinal vein occlusions

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Abstract

Retinal vein occlusion (RVO) is a major cause of severe visual impairment and blindness, affecting particularly the elderly individuals. According to recent reports, there are about 16 million people affected by RVO at a global scale. Nevertheless, given the unabated aging process of the populations worldwide, the incidence and prevalence of RVO is gradually increasing, which poses a cause of concern.

The magnitude of this condition is unknown for Albania, but its prevalence has been logically increasing in the past few decades in line with a sharp increase in the share of older individuals. Yet, population-based studies are warranted in order to assess the exact prevalence of RVO in the Albanian general population.

Several systemic risk factors for RVO are also linked to arterial thromboembolic events including myocardial infarction and cerebrovascular disease. As a matter of fact, epidemiologic studies carried out in the past decade have indicated that RVO is linked to an increased risk of cardiovascular disease (especially hypertension), diabetes mellitus, coronary artery disease and cerebrovascular disease.

Hence, after the diagnosis of a new patient with RVO, physicians should promptly test for hypertension, lipid abnormalities and diabetes mellitus since retinal venous obstruction may be the manifestation of significant cardiovascular morbidity.

Keywords: occlusion, ophthalmology, retinal vein.

Introduction

Retinal vein occlusion (RVO) is one of the leading causes of severe visual impairment and blindness (1,2). As a matter of fact, RVO is the second most frequently occurring retinal vascular disease (3-5). This condition includes both central retinal vein occlusion (CRVO) and branch retinal vein occlusion (BRVO) (1,2). RVO is much more frequent in older individuals (1,2), but it is a frequent cause of painless visual loss in both middle-aged and elderly individuals (3-5).

Incidence and prevalence

According to a combined analysis of population-based data collected at an individual level, there are about 16 million people affected by RVO at a global scale (6). As for the occurrence of RVO, in Korea, during the period 2008-2011, the incidence of RVO was estimated as greater than 48 per 0.1 million person-years in the general population (including all age-groups) and 136.09 per 0.1 million person-years in individuals aged 50 years and above (5,7). Nevertheless, given the unabated aging process of the populations worldwide, the incidence is gradually increasing which poses a cause of concern.

For Albania, a transitional post-communist country in the Western Balkans, there are no reports about the incidence and/or the prevalence of RVO to date. Nonetheless, given the demographic transition in the past 25 years which has led to a sharp increase in the proportion of the older population, it is assumed that the prevalence of RVO is rapidly increasing in the Albanian population as well.

Risk factors

Several systemic risk factors for RVO are also linked to arterial thromboembolic events including myocardial infarction and cerebrovascular disease (8,9). Indeed, it has been convincingly demonstrated that the retinal blood vessels display similar anatomic features and physiologic characteristics with cerebral vessels (2,10). Hence, it has been argued that there might be an association between RVO and myocardial

infarction and cerebrovascular disease occurrence (2,10).

However, the conventional risk factors of cardiovascular and cerebrovascular diseases including older age, cigarette smoking, high activated factor VII and high blood viscosity are considered insufficient to explain comprehensively and exhaustively the occurrence of arterial thromboembolic events (5,11-15).

Epidemiologic studies carried out in the past decade have indicated that RVO is linked to an increased risk of cardiovascular disease, especially hypertension (16), diabetes mellitus (17), and coronary artery disease (18). On the other hand, findings reported from prospective studies assessing the relationship between RVO and the stroke events are inconsistent (5,19,20).

RVO and risk of myocardial infarction

A fairly recent meta-analysis including nine prospective studies (after reviewing 682 potential studies identified from PubMed, Embase and Web of Science), indicated a positive association between RVO and myocardial infarction (2). Hence, the risk of developing myocardial infarction was 28% higher in individuals with RVO compared with their counterparts without RVO (2). The positive relationship between RVO and myocardial infarction was consistent in subgroup and sensitivity analysis and persisted in different models employed in the analysis (2).

RVO and risk of stroke

A recent meta-analysis which included six prospective studies involving 431 cases of stroke and 37,471 participants reported that RVO was associated with an increased risk of stroke (5). On the whole, after adjustment for established cardiovascular risk factors, the risk of stroke was 50% higher in participants with RVO compared to those without RVO (combined $RR=1.5$, $95\%CI=1.2-1.9$) (5). Findings from this meta-analysis were particularly pronounced in participants with a history of stroke, aged 50-69 years with RVO (5).

Similarly, another meta-analysis including nine

prospective studies (2) reported a positive association between RVO and cerebrovascular disease (2). According to this recent report, the risk of developing cerebrovascular disease was 50% higher in individuals with RVO compared with participants without RVO (2). The positive association between RVO and cerebrovascular disease was statistically significant in different modelling and sensitivity analysis (2).

Conclusion

RVO is a major cause of severe visual impairment and blindness, affecting particularly the elderly individuals. The magnitude of this condition is

unknown for Albania, but its prevalence has been logically increasing in the past few decades in line with a sharp increase in the share of older individuals. Yet, population-based studies are warranted in order to assess the exact prevalence of RVO in the Albanian general population.

After the diagnosis of a new patient with RVO, physicians should subsequently test for hypertension, lipid abnormalities and diabetes mellitus since retinal venous obstruction may be the manifestation of significant cardiovascular morbidity.

Conflicts of interest: None declared.

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