Spontaneous ipsilateral subconjunctival hemorrhage and the related risk factors

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Abstract

The aim of the report is to assess the risk factors among patients with spontaneous ipsilateral subconjunctival hemorrhage (SCH) who presented to the outpatients' department in General Hospital of Veria, Veria, Greece. Thirty-five patients with SCH participated in the study. A thorough case history was taken and a full ophthalmic examination was performed to identify the risk factors related to the clinical finding. The common hematological parameters associated with the coagulation profile of each patient were evaluated. With the exception of SCH, the ophthalmic examination was normal in all patients. Identified risk factors include history of systemic hypertension (21 patients [60%], mean systolic value: 170 mmHg±15 mmHg), strenuous exercise [19 patients (54%)] and minor ocular trauma [5 patients (14%)]. Other risk factors [each in 2 patients (6%)] included: diabetes mellitus, smoking, severe cough, straining at stool, and weight lifting. Seven patients (20%) were under medication related to bleeding diathesis. The values of the blood coagulation parameters were within the normal limits in all patients. Twenty-nine patients (83%) had elevated blood pressure during the ophthalmological examination. Our study provides documentation regarding the potential risk factors associated with SCH. It is interesting to observe the high incidence of hypertension among the patients with SCH. Therefore, it is highly recommended that the blood pressure be checked in all patients with SCH and that the patients be referred to a general practitioner for further management if indicated.

Introduction

Subconjunctival hemorrhage (SCH) is a commonly presenting clinical problem for an ophthalmologist.[1,2] In several studies in general ophthalmologic studies, SCHs were seen in 0.35-0.8% of patients.[3,4] The clinical sign of SCH is the presence of blood underneath the conjunctiva, often in one sector of the eye, to the extent in some cases that the entire view of the sclera is obstructed.[1] The purpose of this study was to assess the risk factors among patients with spontaneous ipsilateral SCH who presented to the outpatient department of our referral centre.

Materials and Methods

Participants in the study were 35 patients (21 male and 14 female), mean age 57 years old (SD±16), who presented to the ophthalmology outpatient department with spontaneous ipsilateral SCH. A thorough case history was taken from each individual and a full ophthalmic examination (slitlamp and non-contact lens fundus examination) was performed to identify the potential risk factors related to the clinical finding of SCH. The patients' blood pressure was measured at the time of presentation. The common hematological parameters associated with the coagulation profile of each patient [i.e. platelet count (PLT) Prothrobin time (PT), activated partial thromboplastin time (aPTT), and international normalized ratio (INR)] were also evaluated. The study followed the tenets of the Declaration of Helsinki and was approved by the local ethical committee. Written informed consent was obtained from all subjects prior to their participation.

Results

The ophthalmic examination was normal in all the patients, with the exception of SCH. Twenty-one patients (60%) had a history of systemic hypertension, 2 (6%) had a history of diabetes and 2 (6%) were smokers. Nineteen patients (54%) had a history of recent heavy exercise; 5 patients (14%), possible minor local trauma during sleep; 2 patients (6%), severe coughing prior to the subconjunctival bleeding; 2 patients (6%), straining at stool; and, 2 patients (6%), lifting of weights. Seven patients (20%) were under medication related to bleeding diathesis (5 with acetylsalicylic acid and 2 with clopidogrel bisulfate) (Figure 1). In some of the patients there was a co-existence of two or more of the risk factors under investigation. In 19 of the patients there was only one identified risk factor for SCH. In 8 of the patients, there were 2 risk factors (in 5 of the patients, the 2 were hypertension and heavy exercise, in 1 patient, the 2 were hypertension and diabetes, in 1 patient, the 2 were smoking and minor local trauma, in 1 patient, the 2 were smoking and medication related to bleeding diathesis, and in 1 patient, the 2 were severe coughing and heavy exercise). In 6 of the patients, there were 3 risk factors (in 1 of the patients, the 3 were hypertension, medication related to bleeding diathesis, and lift of weight, in 1 patient, the 3 were hypertension, severe coughing and heavy exercise, in 1 patient, the 3 were hypertension, heavy exercise and minor local trauma, in patient, the 3 were hypertension, straining at stool and heavy exercise, in 1 patient, the 3 were hypertension, heavy exercise and medication related to bleeding diathesis, and in 1 patient, the 3 were heavy exercise, lift of weight and minor local trauma). In one patient, there were 4 risk factors: hypertension, severe coughing, heavy exercise and medication related to bleeding diathesis. In another one patient, there were 5 risk factors: hypertension, diabetes, straining at stool, medication related to bleeding diathesis and lift of weight.

The values of the blood coagulation parameters were between the normal limits [PLT: 256,866 (SD 51,709), PT: 11.38 (SD 0.85), aPTT: 26.02 (SD 2.45), INR:1.02 (0.63)]. It was interesting to observe that 29 patients (83%) had elevated blood pressure during the ophthalmological examination (mean systolic value: 170 mmHg±15 mmHg) while 30 patients (87%) mentioned that they considered that their condition should be medically treated despite the doctor's reassurance that SCH is a self-limiting condition. It is also worthy to mention that 2 patients (6%) visited again the outpatients' department in a week's

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time, even though the SCH was partially absorbed, as they were still anxious regarding their condition.

Discussion

Though it is a non-vision threatening condition in most of the cases, SCH may reflect blood coagulation or underlying systemic disorders. A study by Pitts, *et al*. confirms that blood pressure is higher in SCH than in a control group. According to this study, there is also a high incidence of hypertension in patients with SCH referring themselves to the ophthalmologists, which persists on subsequent assessment. This finding was found true even when the patient attributed the SCH to eye rubbing or to a straining manoeuvre and whether or not the fundus shows early hypertensive changes.[5] The high incidence of hypertension by established criteria suggests that hypertension may be an important aetiological factor in SCH and it is recommended that all patients with this condition have their blood pressure checked and be referred to the general practitioner.[5] A further study by Mimura, *et al.* suggested that the cause of SCH in hypertensive patients is microvascular damage, which is more common in hypertensive patients than in otherwise healthy patients.[2] In our investigation, it was interesting to observe that blood pressure was elevated in the vast majority of the patients with spontaneous ipsilateral SCH, a fact that might possibly be related to their concerns about their condition. SCH develops in patients with local trauma, or a trauma associated with retrobulbar hemorrhage or ruptured globe.[6] SCH is also recognized in whooping cough, sneezing, constipation or other forms of straining (Valsalva) and even strangulation, where the mechanism is thought to be raised venous pressure.[2,3,6] Recurrent, bilateral and severe subconjunctival hemorrhages mandate the search for an underlying etiology, such as a blood dyscrasia, blood clotting disorder, or recurrent increased intrathoracic pressure caused by repetitive vomiting or coughing spells.[7] These risk factors were also assessed in our investigation. It has also been reported that SCH can be a feature of diabetes.[8] Patients with a bleeding disorder, such as haemophilia, or others under anti-platelet or anticoagulant medication may be more prone to having a SCH. In our study, the coagulation blood tests were normal in all the patients. SCH presents more commonly as a spontaneous event without these etiological factors, especially in the elderly or arteriosclerotic patients.[9] A recent study by Mimura, *et al*. reported that the peak age of occurrence of SCH was between 61 and 70 years. Fourteen patients (77.7%) in that study had trauma or contact-lens-induced injury, and 4 patients (22.3%) among the younger patients aged 0-40 years had an unknown etiology. Among the older patients aged 61-94 years, the chief risk factor for SCH was hypertension (47.5%), followed by unknown etiology (39.4%) and then diabetes (13.1%).[2] SCH is self-limiting and typically resolves in two to three weeks, without any treatment required. Artificial teardrops can be given if a mild ocular irritation related to corneal dryness or dellen formation from an elevation of conjunctiva adjacent to the cornea is present. Some authors recommend further investigation of patients having SCH while others suggest that reassurance alone is required.[10] In our investigation it was interesting to observe the high percentage of patients requesting prescribed medication for the treatment of their condition as well as the fact that a proportion of patients visited again the outpatient department for further consultation despite the doctor's reassurance at their initial visit. The reason for the patients' anxiety can be contributed to the fact that SCH can be a source of worry and an embarrassment to the patients, mainly due to its impressive appearance, but also to the mistaken belief that SCH is related to elevated intraocular pressure, strokes, or other serious circulatory system disorders. Our study provides documentation regarding the potential risk factors associated with SCH. It is interesting to observe the high incidence of hypertension among the patients with SCH. It is possible that the high incidence of hypertension is related to patients' concerns about their condition. Nevertheless, it is highly recommended that the blood pressure be checked in all patients with SCH at the ophthalmic exam visit and that the patients should be referred to a general practitioner for further management if indicated.

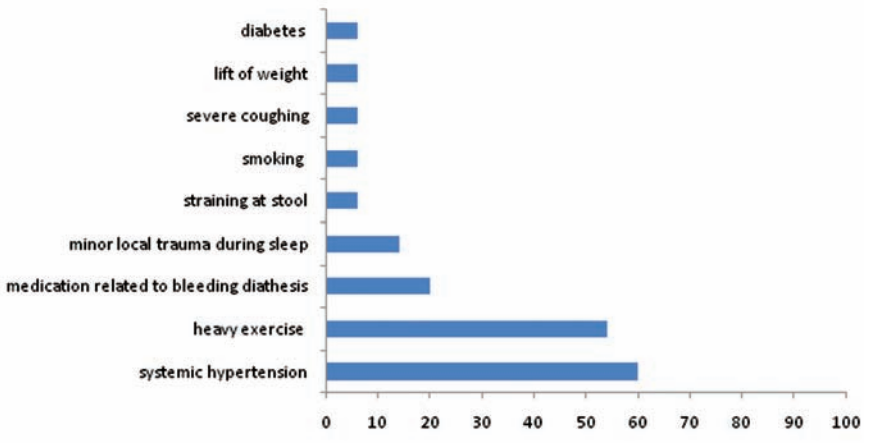

Figure 1. Risk factors related to spontaneous ipsilateral subconjunctival hemorrhage in the participants in our investigation (% percentage).

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