Buerger's Disease: A Literature Review

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Abstract:

Buerger's disease is an inflammatory occlusive disorder affecting the small and medium-size arteries and veins of young, predominately male, smokers. The disorder has been identified as an autoimmune response triggered when nicotine is present. Tobacco abuse is the major contributing risk factor; however, smoking seems to be a synergistic factor rather than the cause of the disease. The traditional diagnosis of Buerger's disease is based on 5 criteria (smoking history, onset before the age of 50 years, infrapopliteal arterial occlusive disease, either upper limb involvement or phlebitis migrans, and absence of atherosclerotic risk factors other than smoking).

Keywords:

Winiwater-buerger's disease, wini Water- buergers, thromboangitis obliterans ,immunoadsorption.

Introduction:

TAO is an inflammatory vascular pathology affecting small- and medium-sized arteries and veins leading to vessel occlusions by the formation of a mononuclear cell-rich thrombus Its etiology is still unknown, but it is inseparably linked to tobacco use. Due to an undulating clinical course, normal vessel segments and different stages of lesions (acute to chronic types) might be found together in the same patient.

Patients with Buerger's disease usually present with acute ischemic or infectious acral lesions (ulcers, gangrenes, subungual infections, phlegmonous) and/or thrombophlebitic nodules. Skin discolorations such as Raynaud's phenomenon, acrocyanosis, or livedo-like pictures are often seen. Rarely, a nonerosive arthritis might precede ischemia for months or years

Etiologic, pathologic, and pathogenetic aspects

There is a very tight correlation between the manifestation, flaring, and recurrence of Buerger's disease (no tobacco, no Buerger's disease). Thus, tobacco must be considered to be the dominant risk factor. Besides potential differences in regional smoking habits, regional and ethnic differences in the prevalence of the disease might point toward a genetic background determining individual susceptibility. Human–leukocyte–antigen-linked factors may play a role; nevertheless, human leukocyte antigen association studies revealed heterogeneous findings.

Diagnostic criteria

Diagnosis is usually based on clinical and angiomorphologic criteria published by Olin et al and Shionoya. The latter is based on only five criteria and thus easy to remember . Combined upper and lower extremity involvement is present in ~20%–25% of the cases. An isolated affection of only one limb strongly argues against Buerger's disease. Proximal arterial involvement is rarely present. Nevertheless, case reports of typical lesions even in cerebral, coronary, and visceral arteries have been published. Thrombophlebitis – if present – is often of migratory type and precedes or parallels arterial disease activity.

Therapy

In the past decades, therapeutic efforts concentrated on pain and infection control, revascularization, or amputation.

Smoking cessation

Nevertheless, the most important therapeutic intervention in Buerger's disease is smoking cessation. Its overwhelming effect for the prevention of consecutive limb amputation was impressively shown Patients with TAO should be prevented not only from active smoking but also from alternative consumption mode and passive exposure. Tobacco dependency is usually considered to be exceptionally strong in patients with Buerger's disease, but in the only prospective study addressing this question the degree of tobacco dependence was similar to that in patients with coronary artery disease.

Revascularization procedures

Due to the distal localization of arterial occlusions and the absence of recipient vessels, interventional or surgical revascularization is impossible to perform in the majority of cases. Nevertheless, especially in the older literature, series of peripheral bypass procedures in Buerger's disease have been published with acceptable results in highly selected patients (revascularization rate: 4.6%–17.7%) and highly specialized centers, reporting up to 48.8% and 62.5% at 5 years, and 43.0% and 56.3% at 10 years, respectively

Immunosuppressive drugs

Although widely used in former times, there is no proven evidence for the use of steroids or cyclophosphamide therapy

Wound management and infection

Local wound management in ischemic lesions in Buerger's disease is based on modern wound care standards with surgical debridement and selected wound dressings according to the wound's stage and condition. As ischemic wounds – if at all – tend to heal very slowly, a cross-sectional and multidisciplinary concept is crucial. Wound, soft tissue, and bone infections might cause serious clinical problems and relapses as they occur in often highly ischemic states. Bacterial species and resistance spectra vary widely with gram-positive species dominating our own series (unpublished data). Starting calculated antibiotic therapy, one has to take anaerobic species and multiple resistances into account.

Outcome and social consequences

According to an older literature survey conducted by Börner and Heidrich, amputations were performed in 6.9%–75% of patients with TAO within 3–10 years of follow-up. Minor amputations predominated; nevertheless, major amputation rate

was reported as high as 31%. The high amputation rates in the relatively young patients significantly contribute to the financial and social burden of the disease, which additionally includes job loss, early retirements, divorces, and subsequent social isolation

Perspective

Many decades from Buerger's landmark report the disease he dedicated himself to remains an important health issue not only in high prevalence regions as it affects young people and induces a high social and financial burden. Hopefully, the new paradigm of an immunopathogenesis of Buerger's disease might improve knowledge and prognosis in the future. To achieve better clinical results, integrated care in multidisciplinary and trans-sectoral teams with emphasis on lifestyle changes such as smoking cessation, pain control, wound management, and social care by professionals, social workers, and family members is necessary.

Treatment

The cornerstone of treatment of Buerger disease is strict abstinence from exposure to all tobacco-containing products. This is the only proven strategy to prevent progression of the disease. In a large series from the Cleveland Clinic of 89 patients with Buerger disease, 43 of them stopped smoking. Of those who stopped smoking, only 2 (5%) required major amputations, as compared with 22 (42%) in those who continued to smoke. Other therapies in patients who are unwilling or unable to abstain.

Summary

Buerger disease is a nonatherosclerotic inflammatory disease that affects the small- and medium-sized arteries and veins of the upper and lower extremities. It most commonly develops in male smokers younger than 45-50 years. Although the etiology of the disease is largely unknown, there is a very clear and strong association with tobacco use. Most patients have involvement of 2 or more limbs. Typical angiographic findings include segmental occlusive disease with corkscrew collaterals

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