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Melatonin's Impact on Periodontal Diseases

José Rivera*

Department of Hematology, Complejo Asistencial Universitario de Salamanca, 37007 Salamanca, Spain

Introduction

Platelets are important in numerous physiological and pathological processes, including hemostasis. Accordingly, the daily generation of roughly 1011 platelets as well as proper survival and functioning are vital aspects of life. A diverse set of roughly sixty rare diseases called inherited platelet disorders (IPDs), which affect either platelet count or platelet functioning, are brought on by molecular aberrations in several of the responsible genes. Their clinical significance varies greatly depending on the particular disease and even within the same category, from insignificant to life-threatening. The clinical spectrum of IPDs includes mucocutaneous bleeding diathesis (epistaxis, gum bleeding, purpura, menorrhagia), as well as multisystemic disorders and/or cancer. On broad genetic investigations, there are still unanswered ethical questions. Patients need to be aware of and understand the possible consequences of their genetic analysis. The clinical care of IPDs has not seen any significant advancements, in contrast to the advancements in diagnosis. Treatment options include allogeneic hematopoietic stem cell transplantation for IPDs that are life-threatening, a few hemostatic medications, platelet transfusions, thrombopoietin receptor agonists, and educational and preventive initiatives. Future options could include gene therapy. For syndromic IPDs in particular, regular follow-up by a professional haematology service with multidisciplinary support is required [1].

Description

A diverse category of uncommon diseases known as inherited platelet disorders are brought on by genetic aberrations in genes important for platelet production and/or function. Even within the same category, clinical consequences in patients with these disorders can vary greatly in importance, ranging from insignificant to life-threatening. As a result, it has long been recognised that timely and precise patient diagnosis and close medical monitoring are of paramount importance. Approximately 60 different kinds of IPD caused by genetic errors in 75 different genes are known at this time. While it is estimated that each affect between 1:104 and 1:106 people, the real incidence of each is unclear. However, more moderate diseases are undoubtedly more prevalent because patients sometimes go undiagnosed for years and even their symptoms can go untreated [2,3].

IPD is characterised by a predisposition to spontaneous mucocutaneous bleeding (epistaxis, gum bleeding, purpura, menorrhagia), which typically starts in childhood. Although this bleeding is typically moderate, it can become worse in circumstances that compromise hemostasis, such as trauma, medication, surgery, or childbirth. Deep, severe bleeding can happen less frequently (central nervous system hemorrhage, digestive bleeding). In addition, several of these IPD are components of multisystemic illnesses known as syndromic IPD. Some patients' bleeding may not be clinically significant, but they do show, or are at a high risk of showing, important conditions in other organs or tissues, or even neoplasms. A molecular diagnosis is especially important to inform clinical care because a correlation between genotype and prognosis and/or clinical severity has been found in some IPD cases [4,5].

Conclusion

Despite the potential benefit of locating molecular abnormalities, it is important to keep in mind that poor molecular pathogenicity determinations might also make clinical therapy difficult. In order to properly filter and understand the pathogenicity of variations discovered by HTS, expert suggestions must be followed. The American College of Medical Genetics and Genomics' recommendations are now the most popular ones. Similarly, despite the increased accessibility of HTS, the value of the clinical assessment and thorough examination of the patients' platelet profile cannot be understated. In addition, there are ethical concerns with the use of HTS that shouldn't be disregarded, such appropriately alerting patients before to their molecular testing or managing inadvertent molecular discoveries. IPD caused by molecular pathology in about 75 different genes has been identified in about 60 different types thus far.

Although it is uncertain how often each type really is, 3 out of every 1000 people may be affected by them. Even though some cases of IPD may go undiagnosed for years or even their entire lives, hemostatic difficulties can lead to problems. In other instances, IPD are syndromic disorders, display pertinent birth-related bleeding problems, or predispose to malignancy. The prevention and treatment of IPD patients therefore depend heavily on early and precise diagnosis, including genetics, and close medical follow-up, including interdisciplinary approaches. IPD patients' quality of life will benefit from additional scientific and clinical research, including the creation of safe and perhaps curative medicines.

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***Address for Correspondence:** José Rivera, Department of Hematology, Complejo Asistencial Universitario de Salamanca, 37007 Salamanca, Spain, E mail: joserivera@gmail.com*

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