Combination of Ph-Negative Myeloproliferative Neoplasms With Autoimmune and Inflammatory Diseases

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Introduction

The risk of developing neoplasms in patients with autoimmune diseases is higher than in the healthy population. Moreover, patients with myeloid neoplasms demonstrate a higher frequency of autoimmune disorders compared to tumors of other histogenesis. Myeloid neoplasms are often combined with autoimmune and inflammatory diseases (AID).

For instance, the combination of AML and MDS with AID reaches 20-30% (Martin D.N. et al. 2009). Patients with AID in medical history had a 20% higher risk of developing MPN (Kristinsson SY et al-2010).

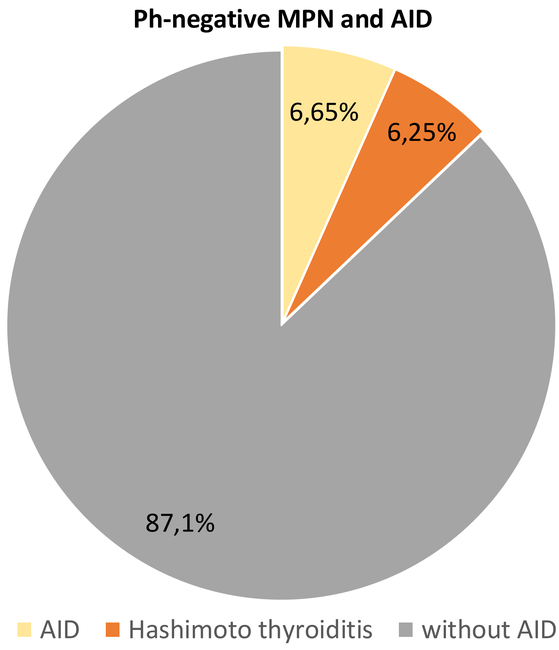
Objectives

The combination of MPN and AID still lacks proper research. Ph-MPNs are associated with myeloproliferation and constitutional symptoms which can also occur in patients with chronic inflammatory diseases, since chronic inflammation induces the secretion of proinflammatory immune mediators (C-reactive protein, IL-1β, IL-6 and TNF-a, etc.) with subsequent activation of proliferation and differentiation of myelopoietic cells. The evolution of Ph-MPNs leads to the formation of reactive microenvironment in bone marrow (BM) with accompanying stimulation of proinflammatory cytokines synthesis, which leads to the development of chronic inflammation, thus creating a vicious circle (inflammation-> cytokine synthesis-> mutation acquisition-> Ph-MPN development-> cytokine synthesis-> inflammation).

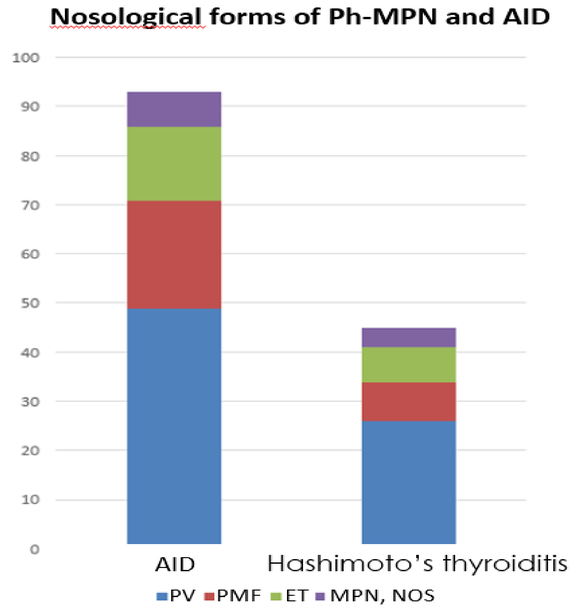
Methods

According to our center's data for 2023-2024, the diagnosis of MPN was established in 1504 cases. Anamnesis, clinical, laboratory and instrumental research data were available for 721 patients.

12.9% (93/721) patients were found to have the pre-existing inflammatory disease, from which 48% of cases (45/93, M:F-1:3.65, age: 19-85, median - 53 years) had been previously diagnosed with Hashimoto's thyroiditis.



Among the nosological forms of Ph-MPN, the most frequent were: PV, then PMF, then ET and MPN-N, respectively.



The presence of concomitant AID did not have an impact on the BM morphology or the degree of reticulin fibrosis of the BM stroma. However, foci of reactive lymphoid infiltration were identified more frequently.

Discussion

The presence of concomitant AID does not affect the criteria for morphological diagnosis of Ph-MPN when examining BM bioptates. However, the identified prevailing combination of Ph-MPN with Hashimoto's thyroiditis requires further investigation in order to define the common mechanism of pathogenesis.