

## Main Blood Diseases and Another Try to Understand Treatments' Side Effects

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### Editorial

Complication of blood diseases have resulted in more complex treatments and unpredictable side effects. There are countless medical treatments and approaches, which are affecting our health. Understanding Main Blood Diseases (MBDs) might help to prevent main side effects caused by different approaches and unknown drugs. Subsequently, understand patients' (ir-) responsiveness to treatments [1-4].

There are raising evidences that three global problems of the patients-Medici relationships might cause different form of the MBDs namely [1] patients do not tell all important underlying symptom(s) histories [2]. Basic researchers get samples and do not visit subjects, officially [3]. Pharmacists (and almost all Medici) might not know exactly why a certain patient gets a certain medication, and what would be the best drugs' final concentration in the targeted organ. Hence in a 'triangle of misinterpretations' side effects could be created from nowhere. For instance, several chemotherapeutic agents besides rituximab appear to have activity in Cardiovascular Diseases. An early report that bortezomib was successful is now confirmed by the current larger study although complete overall responses were observed in only a small group of patients. The most common grade toxicities were thrombocytopenia (20%), neutropenia (28%), and infection (9%) [2].

In general hematologic disorders divided in three major categories 1. Molecular, 2. Cellular and 3. Tissue related symptoms and diseases. Moreover clinical expression of abovementioned disorders might being expressed as seven different clinical representation i.e. tissue-related (Bone Marrow (BM) diseases); White blood cells (WBCs)-related (Leukemia); Red Blood Cells (RBCs)-related (Anemias); platelets (PLTs)-related (Thrombocytopenia); Coagulation factors-related (Hemophilia); proteins/lipids ratio damage -related (Amyloidosis); DNA/RNA-related (Hematooncologic disorders).

Tissue related disorders in production and degradation of Blood Cells/Coagulation Factors Proteins (BC/CFP) ratio mainly affects supply/demand (S/D) ratio in a pathological manner. In one hand, any disturbance by surgical maneuvers and (ab-) use of (un-)known drugs in the S/D processing might increase chance of certain disease i.e. leukocytosis, blasts crisis etc. In the other hand, pathological early destruction also results in a significant decrease in BC/CFP ratio, which might also result in a disorder i.e. hemophilia, thrombocytopenia, pancytopenia.

Recently become obvious that different mutations in the WBCs' 1. Count, 2. Size, 3. Form, 4. Granularity and 5. Aggressiveness have to be considered as a serious warning; either as side effect or underlying

mechanism of developing horrific disease. During hematologic tests over-presentation of the WBCs in blood samples is of major concern. A chronic increase in WBCs' count and aggressiveness could (in-) directly mean a certain defense system disorder. Subsequently, any progressive mutations could have nasty "life threatening" consequences.

Besides, a decrease in number of the BC/P ratio means both processes of production and consumption being affected and could increase mortality rate, as well. Moreover, in anemia can another cause(s) being involved i.e. decreased oxygen-binding ability of each Hb molecule due to deformity. Because anemia is the most common disorder of the MBDs, understanding any changes might play critical role in preventing side effects [3-5]. For instance, in patients with inadequate responses or side effects with oral preparations, intravenous iron supplementation is the therapy of choice [4], and no other kinds.

Based on last estimates of the Centers for Disease Control and Prevention, approximately 5.5 million Americans a year are either admitted to a hospital or seen by a Physician, with some form of anemia as their primary diagnosis. Why so many got anemia is not clarified.

Another kind of the MBDs is thrombocytopenia. If acute thrombocytopenia did not recover soon, treating Physician should make resolute plan about (in-) direct side effects of developing chronic thrombocytopenia. Eventually, the main concern is not why thrombocytopenia takes place but what did happen last months, essentially?

Now how blood cells interact with adjacent and distance tissues prior and after certain treatments and how side effects initiated are not elucidated yet. In the 21<sup>st</sup> Century, One might expect of Medicine that having at least a cure and care plan prior to treatments, to avoid side effects, in my view would be a reasonable expectation.

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