The ITP Support Association Platelet Reprint Series

No. 34 – Is being young, better? “Yes”, if it's platelets

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Title: **Is being young, better? “Yes”, if it's platelets in ITP!!!!**

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As the readers of The Platelet know very well, ITP is a condition where despite the increased production of platelets from the bone marrow, the immune system destroys them rapidly leading to thrombocytopenia. It is also well-known that individuals with ITP do not have the same bleeding tendency as those with the same degree of thrombocytopenia caused by a bone marrow problem. Also, the platelet count is a poor predictor of bleeding in individuals diagnosed to have ITP.

One of the reasons often provided for the reduced bleeding tendency in ITP is the predominance of very young platelets which are more active than older ones. Why may there be a larger number of young platelets in ITP? A reduced number of circulating platelets triggers signals to the bone marrow to increase the production of platelets. Since the platelets are required rapidly in the circulation, the bone marrow will allow the release of a large number of younger (immature) platelets to compensate for their reduced number in the blood. These younger platelets are more capable of stopping bleeding than older ones and may explain the better bleeding profile in ITP.

In the process of platelet production, the size of platelets decreases with increasing maturation. In other words, less mature platelets are bigger in comparison with the fully mature ones. In the laboratory, an easily available test called mean platelet volume (MPV) gives the average size of platelets in the blood circulation. The MPV takes into consideration all the different sized-platelets.

So if the younger platelets are the most predominant, the MPV will be greater than but if the number of young platelets is small, the MPV will be normal. In patients with ITP, the MPV is usually higher than normal and has been suggested to predict bleeding tendency to some extent. Although this measurement by itself should not be relied upon, it can be considered in combination with other factors like the extent and type of bruising and bleeding episodes to decide on treatment.

The MPV is also beneficial when investigating the cause of a thrombocytopenia. Since the diagnosis of ITP is the exclusion of other conditions which can cause low platelet count, obtaining a through history in patients presenting with low platelet count is important. One of the key questions in this context is if thrombocytopenia runs in the family. It is unusual for ITP to be diagnosed in several members of the same family except in very rare circumstances. Thrombocytopenia noted in the family suggests a hereditary thrombocytopenia. Such patients may also have a very high MPV. Classification of thrombocytopenia disorders based on MPV has been suggested by Drs Noris and Balduini of Italian Gruppo di Studio delle Piastrine.

Since the crucial part of MPV is the younger platelets, it would be logical to look at the absolute number of these immature platelets. This can be obtained from the laboratory as the immature platelet fraction (IPF). Work from brilliant researchers including the ITP world expert, Professor Bussel has shown that if the IPF is high, then such individuals are less likely to bleed from low platelet count compared to those who have a normal IPF and a similar count. This marker can this be helpful for two reasons— the first to understand whether, despite a very low platelet count the risk of bleeding is high or not and also as the next step, whether you need any treatments to elevate the platelet count.

In summary, it may be useful for patients with ITP to know their MPV or IPF, which can give a rough estimate of their potential bleeding risk. These measurements are easily available in most laboratories and may be considered part of the routine assessment during the clinic visits. It can form part of the decision process for starting new treatments, if at all or changing the present ones.