

Effect of fingolimod on platelet count among MS patients

Nahid Sedaghat ¹, Ali Amani Beni ^{2*}, Ali Amani Beni ³, Leah Revard ⁴, Mehrdad Farrokhi ⁵, Milad Ghadimi ⁶, Ali Rezaei ⁷, Masoud Etemadifar ⁸

1-Isfahan Neurosciences Research Centre (INRC), affiliated to Isfahan University of Medical Sciences, Isfahan, Iran

2-Medical student, Faculty of Medicine, Isfahan University of Medical Sciences, Esfahan, Iran. Isfahan Neurosciences Research Centre (INRC), affiliated to Isfahan University of Medical, X

3-Medical student, Faculty of Medicine, Isfahan University of Medical Sciences, Esfahan, Iran

4-Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, Rhode Island 02912, USA; Department of Neuroscience, Brown University, Providence, Rhode Island 02912, USA

5-Medical student, Faculty of Medicine, Isfahan University of Medical Sciences, Esfahan, Iran. Isfahan Neurosciences Research Centre (INRC), affiliated to Isfahan University of Medical

6-Isfahan University of technology, Department of electrical and computer engineering, Isfahan, Iran

7-Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, Rhode Island 02912, USA; Department of Neuroscience, Brown University, Providence, Rhode Island 02912, USA

8-Isfahan Neurosciences Research Centre (INRC), affiliated to Isfahan University of Medical Sciences, Isfahan, Iran. Department of Neurology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran; Multiple Sclerosis and Neuroimmunology Research Center, Isfahan, Iran.

Background: While many studies have previously focused on fingolimod's effect on immune cells, the effect it has on circulating and local CNS platelets has not yet been investigated. This study will elucidate what effects fingolimod treatment has on MS patients' plasma platelet levels. In addition, it will propose possible reasoning for these effects and suggest further investigation into this topic.

Methods: This quasi-experimental study used patients from the Isfahan Multiple Sclerosis Society (IMSS) to produce a subject pool of 80 patients, including 14 patients who ceased fingolimod use due to complications. The patients had their blood analyzed to determine platelet levels both one month prior to fingolimod treatment and one month after fingolimod treatment had been started.

Results: The mean level of platelets before initiation of fingolimod therapy (Plt1) among these MS patients was 256.53 ± 66.26 . After one month of fingolimod treatment the platelet level yielded an average of 229.96 ± 49.67 (Plt2). This number is significantly lower than the average platelet count before treatment ($P < 0.01$)¹.

Conclusion: MS patients taking oral fingolimod treatment may be at risk for side effects caused by low platelet levels. This may not be a factor for

patients with higher or normal platelet levels. However, a patient with naturally low platelet levels may experience a drop below the normal level and be at risk for excessive bleeding. In addition to these possible harmful side effects, the decreased platelet population may pose positive effects for MS patients.

Key words: Multiple sclerosis; Fingolimod; Platelet