Letter to the Editor


To the Editor:

We read with great interest the study by Giede-Jeppe et al, which provided evidence that lymphocytopenia is an independent predictor of unfavorable functional outcome in spontaneous intracerebral hemorrhage (ICH). We would like to highlight 3 important issues raised in the study by Giede-Jeppe et al.

First, why does the number of circulating lymphocytes decrease in patients with ICH? Two major reasons come to mind: one has to do with the severity and progression of ICH, and the second reason is related to some external environment factors, such as infections that can potentially change lymphocytes. If lymphocytopenia is related to the severity of disease process, then why their study did not compare the diagnostic values of lymphocytopenia and National Institutes of Health Stroke Scale for unfavorable functional outcome? If the cause for the decline of lymphocytes is because of infections or other similar inflammatory diseases, then the association between lymphocytes and unfavorable functional outcome may disappear after adjusting for infections. That is because infections can lead to poor outcome after ICH by many different mechanisms—such as neutrophils may also play an important role in ICH-induced brain injury—and not only by lymphocytopenia.

Second, what is this causal relationship between day-5 lymphocytopenia and infections? As Giede-Jeppe et al said, acute brain injuries induce an acquired immune deficiency in the subacute phase after stroke, which predisposes patients to infections. This immunosuppression syndrome is characterized by lymphocytopenia and reduced monocyte functions, which is closely related to the severity of ICH. However, Giede-Jeppe et al revealed no association of hematoma volume with day-5 lymphocytopenia. Therefore, we proposed that day-5 lymphocytopenia might be a concomitant phenomenon of infections, such as sepsis, which can significantly induce lymphocyte apoptotic cell death. We mean that the upstream and downstream relationship between day-5 lymphocytopenia and infections may be as follows: infections to lymphocytopenia or unfavorable functional outcome, may not hematoma to lymphocytopenia to infections to unfavorable functional outcome. We would like to have comments by Giede-Jeppe et al on this issue in theory.

Third, as the authors stated, the lymphocyte counts after ICH demonstrate significant temporal variation. However, the study by Giede-Jeppe et al does not provide related information on how many hours from the onset time to baseline blood samples obtained time (onset to blood samples time). We mean that the onset to blood samples time may be having an influence on lymphocytopenia on admission and may affect the association between lymphocytopenia and end points.

Finally, some details confuse us. In Table 3, those lymphocyte droppers developed significantly more often infectious complications (pneumonia: 71.6% versus 48.5%; \( P < 0.001 \) and sepsis: 42.1% versus 30.0%; \( P = 0.042 \)). However, these patients showed less granulocyte counts. Similarly, functional outcome was worse in patients who developed day-5 lymphocytopenia, but the level of lymphocytes is higher in these patients, which is different from Tables 1 and 2 (the lower the lymphocyte counts, the poorer the functional outcome).

Many thanks, and here we express our best sincere respect to Giede-Jeppe et al for their innovative and interesting study.

Disclosures

None.

Zhiliang Guo, MD
Shuhong Yu, MD
Wusheng Zhu, MD, PhD
Department of Neurology
Jinling Hospital
Medical School of Nanjing University
Nanjing, China

Letter by Guo et al Regarding Article, "Lymphocytopenia Is an Independent Predictor of Unfavorable Functional Outcome in Spontaneous Intracerebral Hemorrhage"
Zhiliang Guo, Shuhong Yu and Wusheng Zhu

Stroke. 2016;47:e215; originally published online June 30, 2016;
doi: 10.1161/STROKEAHA.116.013877

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/47/8/e215