Response to Letter by Schäbitz et al

Response:

We appreciate the comments of Drs Schäbitz and Schneider regarding our review article on the neuroprotective effect of granulocyte-colony stimulating factor (G-CSF). A great deal of attention has been focused on the nonhematopoietic functions of hematopoietic factors in other tissues, including the central nervous system (CNS). Hematopoietic factors not only play an important role in the development of the CNS, but they also play a role in neuroprotection and neural tissue repair after various types of experimental CNS injuries.

Recent experimental studies showed that G-CSF is neuroprotective. However, many questions are raised by the first report regarding the mechanisms of this neuroprotection. For example, functional benefits may result either from a favorable impact of mobilization of autologous stem cells by G-CSF and their contribution to brain repair or by direct effects of G-CSF on neuronal tissue by binding its specific receptor G-CSFR, or both. Hence, in our review article, we tried to provide an overview with regard to the current knowledge on the neuroprotective properties of G-CSF and the signal transduction systems that have been suggested to be involved in neuroprotection, after experimental CNS diseases. However, as Drs Schäbitz and Schneider have mentioned, we were unfortunately not able to discuss the results of ongoing G-CSF trials in human stroke. The results of these trials and the data from personal communications that authors present were not available during the preparation of our article. Very recently, G-CSF has been reported to be a safe and feasible agent for human stroke therapy.

We disagree with the author’s comment that “...it comes from a group not involved in primary research in this field.” We previously reported the neuroprotective properties of erythropoietin (EPO) after various CNS injuries, including a neonatal rat model of hypoxic/ischemic injury and experimental spinal cord contusion injury. The first study that demonstrated the protective effect of EPO against intracerebral ischemia/reperfusion injuries in the developing brain has also been published by our research team. We have also shown that the protective effects of EPO are not restricted to the nervous system. Currently, our research team is focusing on the neuroprotective properties of EPO/G-CSF after focal/global cerebral ischemia and in neonatal stroke models.

In conclusion, the translation of any therapy from the laboratory bench to the bedside needs strong bridges. We are helping to build these bridges, as other researchers do. We will certainly look forward to the results of the clinical trials on G-CSF in human stroke, and continue working to explore the potential mechanisms of G-CSF-mediated neuroprotection.

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