

LETTER TO THE EDITOR

The Utility of Serial Cerebrospinal Fluid Removal in Elderly Patients with Idiopathic Normal-Pressure Hydrocephalus?

Halil Onder, Guven Arslan

Department of Neurology, Yozgat City Hospital, Yozgat, Turkey

Dear Editor,

Recent reports have investigated the utility of serial cerebrospinal fluid (CSF) removal in some selected subgroups of patients with normal-pressure hydrocephalus (NPH).^{1,2} This is an interesting issue strictly on clinical grounds considering that we frequently encounter patients with NPH in whom shunt operation is not applicable due to contraindications such as advanced age, comorbidities, or the patient and/or relatives may not accept surgery as an option. Furthermore, in some subgroups of patients, the existence of a comorbid neurodegenerative disorder may make it difficult for a clinician to determine the potential benefit of shunt surgery, and no consensus supporting the advantage of surgery exists in these circumstances.³ On the other hand, a high rate of shunt-related complications may occur during postsurgery follow-up,⁴ which also constitutes a contraindication to surgery. Taken together, the potential utility of serial CSF removal, which has been emphasized as an alternative therapeutic method to shunt surgery in the abovementioned patient subgroup,^{1,2} may constitute an extremely intriguing issue to be clarified in related studies. With this in mind, we aimed to evaluate the limited number of previous studies investigating the utility of repeated lumbar puncture (LP) in patients with NPH. We would like to discuss this topic, focusing on the latest intriguing study by Isik et al.,⁵ and we would like to propose some valuable perspectives that may be taken into consideration while conducting future related studies.

The original contribution by Isik et al.,⁵ remarking on the util-

ity of serial CSF fluid removal in elderly patients with NPH, is surely important. In their report, they present the results of the benefit of serial CSF removal in 43 patients with NPH. They illustrate the results of walking trials and detailed cognitive tests that they performed pre- and post-LP. However, there are some points to be clarified for a better understanding of this article and related issues. First, in the study by Isik et al.,⁵ the authors define their aim as investigating the outcome of serial removal of CSF in this patient subgroup. However, in our opinion, this might not be properly investigated via this study method. Remarkably, clinical evaluations were made after 24 hours of CSF removal, but no clinical data on the long-term follow-up after CSF removal were included in the study. Otherwise, the authors emphasize their method of evaluating the criteria for the deterioration of gait (which was defined as a > 10% preremoval change in the average of two walking trials during the Timed Up and Go test) for determining eligibility for the CSF removal procedure. However, via such a method, this study may instead evaluate the transient recovery effect of CSF in the changing phases of the disease, which may not be an interesting issue for further investigations. However, the critical question is whether CSF removal provides sustained improvement in these patients. In addition, this potential effect may be comparable with that provided by shunt surgery, which was also not investigated in this study.

In the crucial prospective study by Rossi et al.¹ on 39 NPH patients aged 75 years and older, the authors found that periodic CSF therapeutic taps are safe, allow better control of idiopathic-

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Corresponding author: Halil Onder, MD

Department of Neurology, Yozgat City Hospital, Erdogan Akdag Street, No. 8, Yozgat 66100, Turkey / Tel: +90-3544442066 / Fax: +90-03545020301 / E-mail: halilonder@yahoo.com

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normal pressure hydrocephalus symptoms, and prevent functional decline in geriatric patients. They did not include criteria to evaluate objective functional decline for determining eligibility for the CSF removal procedure. However, they evaluated the response to the CSF tap test 1 week after the procedure, which enabled them to evaluate the sustained effect of the procedure. Furthermore, patients who had benefited from the CSF tap tests were scheduled for a monthly follow-up. In conclusion, their clinical judgments found that the mean time frame of benefit from any procedure was 7 months, which was a crucial result directly responding to the primary objective of the study.¹ In the other study by Lim et al.,² the authors identified the prolonged response group as being composed of patients whose score in any category of the NPH scale improved by at least one point or whose reported subjective improvement was sustained up to 3 months. In conclusion, they found that this subgroup of NPH patients could maintain favorable courses for at least 1 year after LP without shunt operation. They also tried to investigate the clinical clues to determine these selected NPH patients who may respond to repeated LP treatment.

In conclusion, there needs to be a great amount of additional research to investigate the possible sustained effect of repeated LP in patients with NPH who are not candidates for shunt therapy. The clinical prognoses of these patients treated with serial CSF removal may be compared with the prognoses of patients treated with shunt surgery in future randomized controlled studies. The results of these studies may also present serial LP as an alternative therapy for patients in whom there are no contraindications for shunt surgery. Another critical question to be investigated is whether this potential sustained improvement by LP varies according to the changing phases of the disease. Fu-

ture prospective studies of larger case series may provide critical contributions in these regards.

Conflicts of Interest

The authors have no financial conflicts of interest.

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Author Contributions

Conceptualization: Halil Onder. Data curation: all authors. Formal analysis: Halil Onder. Investigation: all authors. Methodology: Halil Onder. Project administration: Halil Onder. Resources: Halil Onder. Supervision: Halil Onder. Validation: Halil Onder. Visualization: Halil Onder. Writing—original draft: all authors. Writing—review & editing: Halil Onder.

ORCID iDs

Halil Onder	https://orcid.org/0000-0002-1823-2278
Güven Arslan	https://orcid.org/0000-0001-7074-0205

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