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# Normal pressure hydrocephalus – why treatment is often delayed or not even initiated

Uwe Kehler

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Normal pressure hydrocephalus is a common disease in elderly people and treatment is beneficent. It is also well known, that delayed treatment of NPH shows worse results than early treatment. However, many patients are sent with enormous delay and/or not even sent to hydrocephalus specialists. The aim of this work is to search for the reasons and discuss improvements.

## Methods

The reasons for delayed treatment of NPH in patients who were treated finally in our department are summarized. Only reasons which occurred twice are mentioned not to overestimate too exceptional cases. Only cases were included who improved after shunt surgery.

## Results

The reasons for delayed NPH treatment could be identified: 1: Spinal tap testing did not show clear improvement, although patient felt substantial improvement. 2: Examination of spinal tap test was done at wrong time, patient improved substantially after demission of the hospital. 3: Radiologist misdiagnosed hydrocephalus (typical wrong diagnosis: brain atrophy and/or cerebral micro-angiopathy), 4: Patient was considered to be too old for shunt surgery. 5: General physician and/or neurologist considered surgery too risky (without explaining the patient the progressive natural history of the disease). 6: NPH was not suspected by the general physician and/or neurologist or NPH was misdiagnosed as Alzheimer's disease and Parkinson's disease.

## Discussion

Unawareness of NPH, general physician's and neurologist's fear of shunt complications, thoughtless radiological diagnosis of brain atrophy with excluding hydrocephalus

are some reasons why patients are sent delayed to hydrocephalus specialists. Medical education and information has to be improved that NPH patients can get the benefit of treatment as early as possible.

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## References

1. Lemcke J, Meier U, Müller C, Fritsch M, Eymann R, Kiefer M, Kehler U, Langer N, Rohde V, Ludwig HC, Weber F, Remenez V, Schuhmann M, Stengel D: Is it possible to minimize overdrainage complications with gravitational units in patients with idiopathic normal pressure hydrocephalus? Protocol of the randomized controlled SVASONA Trial (ISRCTN51046698). *Acta Neurochir Suppl* 2010, **106**:113-5.
2. Kluge S, Baumann HJ, Regelsberger J, Kehler U, Gliemroth J, Koziej B, Klose H, Meyer A: Pulmonary hypertension after ventriculoatrial shunt implantation. *J Neurosurg* 2010, **113**(6):1279-83.
3. Piek J, Weber C, Kundt G, Tronnier V, Spuck S, Hirdes C, Kehler U, Ditges C: Pharmacoeconomical Consequences of Postoperative CSF Leaks after Intracranial Surgery - A Prospective Analysis. *Cen Eur Neurosurg* 2011 Sep 19, [Epub ahead of print].
4. Kehler U, Langer N, Gliemroth J, Meier U, Lemcke J, Sprung C, Schlosser HG, Kiefer M, Eymann R, Heese O: Reduction of shunt obstructions by using a peel-away sheath technique? A multicenter prospective randomized trial. *Clin Neurol Neurosurg* 2012, **114**(4):381-4.
5. Lemcke J, Meier U, Müller C, Fritsch M, Kiefer M, Eymann R, Kehler U, Langer N, Schuhmann MU, Speil A, Weber F, Remenez V, Rohde V, Ludwig HC, Stengel D: On the method of a randomised comparison of programmable valves with and without gravitational units: the SVASONA study. *Acta Neurochir Suppl* 2012, **114**:243-6.
6. Kehler U, Hirdes C, Weber C, Spuck S, Tronnier V, Kundt G, Piek J: CSF leaks after cranial surgery — a prospective multicenter analysis. *Innovative Neurosurgery*, Online 08/12/2012.
7. Lemcke J, Meier U, Müller C, Fritsch MJ, Kehler U, Langer N, Kiefer M, Eymann R, Schuhmann MU, Speil A, Weber F, Remenez V, Rohde V, Ludwig HC, Stengel D: Safety and efficacy of gravitational shunt valves in patients with idiopathic normal pressure hydrocephalus: a pragmatic, randomised, open label, multicentre trial (SVASONA). *J Neural Neurosurg Psychiatry* 2013, **84**(8):850-7.
8. Meier U, Stengel D, Müller C, Fritsch MJ, Kehler U, Langer N, Kiefer M, Eymann R, Schuhmann MU, Speil A, Weber F, Remenez V, Rohde V, Ludwig HC, Lemcke J: Predictors of subsequent overdrainage and clinical outcomes after ventriculoperitoneal Shunting for idiopathic normal pressure hydrocephalus. *Neurosurgery* 2013, **73**(6):1054-60.
9. Fritsch M, Kehler U, Meier U: *Normal Pressure Hydrocephalus*. Thieme Verlag 2014, Stuttgart New York Dehli Rio.

Correspondence: u.kehler@asklepios.com  
Asklepios Hospital Hamburg Altona, Germany

10. Gliemroth J, Käsbeck E, Kehler U: Ventriculocisternostomy versus ventriculoperitoneal shunt in the treatment of hydrocephalus: A retrospective, long-term observational study. *Clin Neurol Neurosurg* 2014, 122:92-6.

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