

CORRESPONDENCE

Central Oculomotor Disturbances and Nystagmus: A Window Into the Brainstem and Cerebellum

by Prof. Dr. med. Michael Strupp, Dr. med. Katharina Hüfner, Dr. med. Ruth Sandmann, Dr. med. Andreas Zwergal, Prof. Dr. med. Marianne Dieterich, PD Dr. med. Klaus Jahn, Prof. Dr. Dr. h. c. Thomas Brandt, FRCP in volume 12/2011

Downbeat and Upbeat Nystagmus

Authors Strupp et al. convincingly explained the importance of central oculomotor disturbances (1). I wish to add that occasionally, downbeat nystagmus (DBN) and upbeat nystagmus may be present depending on the person's gaze direction. Pronounced DBN can sometimes occur in all directions of gaze, even when looking upwards (2).

Numerous causes for DBN are known. Familial DBN subsequent to spinocerebellar degeneration is among the most common causes of DBN. In addition to hereditary causes, causes of acquired DBN include brain stem infarctions, toxic adverse effects of medication (for example, phenytoin, carbamazepine, lithium, morphine derivatives), brain tumors, paraneoplastic syndrome, alcoholism, trauma, encephalitis, and multiple sclerosis (3). In addition to the medications listed by Strupp et al., the literature also mentions prism treatment and Kestenbaum eye muscle surgery among the therapeutic options.

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REFERENCES

1. Strupp M, Hüfner K, Sandmann R, et al.: Central oculomotor disturbances and nystagmus: a window into the brainstem and cerebellum. *Dtsch Arztebl Int* 2011; 108(12): 197–204.
2. Schmidt D: Downbeat nystagmus an upgaze. *Neuro-Ophthalmology* 1991; 11: 223–7.
3. Schmidt D: Downbeat-Nystagmus. A clinical review. *Neuro-Ophthalmology* 1991; 11: 247–62.

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In Reply:

We thank our correspondent for his constructive comments.

In response to the first point raised: Downbeat nystagmus (DBN) or, better, the downbeat nystagmus syndrome, is usually accompanied by other oculomotor disturbances, especially gaze palsy (1) and saccadic pursuit, because the cerebellar flocculus is also important for the gaze holding function and pursuit. For this reason, the intensity of the DBN depends on the line of gaze.

In response to the second point raised: The most common provable causes of DBN are degenerative cerebellar disorders (2) as well as bilateral brain stem infarctions. All other causes mentioned are relatively rare, some have been described only in individual case reports.

In response to the third point raised: In addition to medication treatment, prism treatment is important and, in case none of the other procedures prove to be effective, even surgery is an option. Today's medical drugs of choice for the treatment of DBN are the aminopyridines. These are effective even in type 2 episodic ataxia, as was shown by a recent placebo controlled study (3).

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REFERENCES

1. Glasauer S, Hoshi M, Kempermann U, Eggert T, Buttner U: Three-dimensional eye position and slow phase velocity in humans with downbeat nystagmus. *J Neurophysiol* 2003; 89: 338–54.
2. Wagner JN, Glaser M, Brandt T, Strupp M: Downbeat nystagmus: aetiology and comorbidity in 117 patients. *J Neurol Neurosurg Psychiatry* 2008; 79: 672–7.
3. Strupp M, Kalla R, Claassen C, et al.: A randomized trial of 4-aminopyridine in EA2 and related familial episodic ataxias. *Neurology*. In press 2011.
4. Strupp M, Hüfner K, Sandmann R, et al.: Central oculomotor disturbances and nystagmus: a window into the brainstem and cerebellum. *Dtsch Arztebl Int* 2011; 108(12): 197–204.

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Conflict of interest statement

The authors of both contributions declare that no conflict of interest exists.