Vision- and health-related quality of life in patients with visual field impairments after lesions to the central visual pathway

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Vision loss and blindness have a negative impact on functional ability and quality of life (QoL). A large number of studies investigated associations between the characteristics of the vision impairment and self-reported visual functioning assessed with vision-related QoL instruments in patients with ophthalmological diseases. The use of standardized vision-related QoL instruments to measure the functional visual status of patients is an approach that is gaining popularity. However, little is known about the subjective impact of visual field loss (VFL) on vision-related QoL in patients with VFL after cerebral damage.

Therefore, the major aim of the reported studies was to investigate the association of self-reported vision- and health-related QoL with the extent of VFL after lesions to the central visual pathway. The National Eye Institute – Visual Function Questionnaire (NEI-VFQ) was administered to assess vision-related QoL. Additionally, health-related QoL was obtained by the Health Survey Short Form (SF-36). Both questionnaires were self-administered.

I: In a first study investigating a large sample of 312 postchiasmatic-lesioned patients, remarkably lower vision-related QoL (NEI-VFQ) was observed compared to healthy subjects, and also lower health-related QoL (SF-36) than in post-stroke brain-injured patients, particularly in the domain role functioning. VFL and visual acuity had a coordinate influence on vision-related QoL in VFL patients with postchiasmatic lesions, whereas diminished health-related QoL was not associated with VFL and visual acuity. Topography specific reductions of vision-related QoL were shown.

II: Patients with VFL after postchiasmatic cerebral brain injuries often complain about reading problems. Since reading is one of the most impaired activities of daily living in patients with VFL, the question arose, whether especially parafoveal vision impairments impact objective reading performance and self-evaluated reading abilities. This reading impairment was assessed by reading-related items of the NEI-VFQ in 43 patients with VFL. Subjective reading impairments were associated with reading speed and reading acuity. Reading speed was faster when the area of sparing within the affected hemifield was larger. This finding emphasizes the importance of an intact parafoveal visual field region for fluent reading and is consistent with the literature. However, it was shown for the first time, that this effect was also subjectively noticed to some extent by the patients themselves, as subjective impairments were considered to be smaller when the parafoveal intact visual field was larger.

III: To investigate the additional impact of persisting VFL on health-related QoL in stroke patients, we contrasted health-related QoL of stroke patients with VFL (n=177) with a general sample of first stroke patients which included all possible lesion locations and resulting functional impairments. Health-related QoL impairments was found to be significantly exacerbated by VFL. This conclusion could be drawn with reasonable certainty because the lesion age of first stroke patients with VFL was considerably higher than that in the general stroke sample.

IV: Additionally, the relation between QoL consequences of VFL and psychological distress assessed with the Symptom-Checklist-90-revised was studied in a small sample (n=24). It is known, that cerebral damage causes diminished QoL and is associated with depression. If vision- and health-related QoL impairments are associated with psychological distress was not yet studied in visually impaired patients with VFL after cerebral damage. While the extent of the VFL had no direct influence on psychological distress, vision-related QoL was identified as a mediating factor related to both, VFL as well as psychological distress.

V: Finally, it was investigated, whether the NEI-VFQ is a valuable measure of therapy-induced change in self-reported visual impairment. After intensive visual training of the visual field border zone in patients with visual field defects (n=85), changes in self-reported vision- and health-related QoL were observed, but only some NEI-VFQ scales were sensitive to changes in visual field extensions after visual training, while SF-36 scales were not.

In summary, the NEI-VFQ is a valuable measure of self-reported visual impairment in patients with visual field defects reflecting not only the degree of VFL but also showing relations to its topography and changes over time. In patients with VFL, self-reported vision-related QoL should be used together with objective clinical measures to monitor the patients` individual status and progress.