Spatial neglect (SN) is a main consequence of right hemisphere stroke. Prism adaptation (PA) to a rightward optical deviation could reduce SN manifestations and especially improve performance in article and pencil tests\(^1,2\) and errors in reading texts,\(^1\) single words,\(^2,3\) and nonwords.\(^3\) However, the efficacy of PA has been discussed recently.\(^4,5\)

We re-evaluated the efficacy of PA on reading and other clinical tests by comparing the effect of deviating and neutral prisms in the same patients.

Subjects and Methods

Subjects

Ten right-handed SN patients were recruited consecutively after a recent (mean poststroke delay 54.3 days; range 17 to 102) right hemisphere stroke (middle cerebral artery infarct 8; subcortical hemorrhage 2). Each gave written informed consent to participate in the study. They were selected for their pathological performance\(^6\) in the following tests: bell cancellation, line bisection (20 cm/H11022), errors in reading texts, 1 single words,\(^2,3\) and nonwords.\(^3\)

We first used conventional clinical SN test: bell cancellation (left–right omissions)\(^7\) and evaluated the difference between left and right omissions (%).

Results

In conventional SN tests, the group effect was always significant. Compared with controls, SN patients from both groups showed significant higher left–right omissions in the bell cancellation test (N+H+; N+H−; controls 0.02; \(P=0.0001\)), right deviation in line bisection (N+H+; 31 of 100 mm; N+H−; controls 0.06; \(P=0.0007\)), and left
improve neglect dyslexia. Reduction of errors in text reading bisection, or scene drawing.1,2,7 Furthermore, PA did not confirm the positive effect of PA, which has been reported on "paper and pencil" tests using symbol cancellation, line bisection, or scene drawing.1,2,7

In this study of 10 stroke patients with SN, we failed to confirm the positive effect of PA, which has been reported on "paper and pencil" tests using symbol cancellation, line bisection, or scene drawing.1,2,7 Furthermore, PA did not confirm the positive effect of PA, which has been reported on "paper and pencil" tests using symbol cancellation, line bisection, or scene drawing.1,2,7

For reading a text, the group effect was significant (P = 0.009) on left–right omissions, which were greater in patients than controls (global: N = 54.0%; N + H = 42.2%; controls 0.05%). The main effects of the other factors and the interactions were not significant.

At an individual level, the negative results were relatively homogenous and independent of the severity of SN; no patient showed definite and selective improvement using deviating prisms.

**Discussion**

In this study of 10 stroke patients with SN, we failed to confirm the positive effect of PA, which has been reported on "paper and pencil" tests using symbol cancellation, line bisection, or scene drawing.1,2,7 Furthermore, PA did not improve neglect dyslexia. Reduction of errors in text reading

has been reported in 1 study1 at the immediate and late (2 hours) post-tests. Positive effect has also been reported on single word and nonword reading.2,3 However, in a more recent report,4 authors did not find definite efficacy when patients had hemianopia in addition to SN.

It seems unlikely that our negative results were related to prisms, PA training, or tests, which were similar to those used by other authors. The post-PA effect measured by index finger pointing was comparable.2–4 Furthermore, the absence of effect was not related to the presence of hemianopia.4 One important point was that we showed partial improvement with repetition of tests, independent of the quality of prisms, which was more evident at later sessions. It could be related to a learning effect or an increase of vigilance or sustained attention, both of which have an important relationship with SN.9 This could account for the improvement reported in previous series, in which the effect of deviating prisms was not systematically compared with that of neutral prisms in the same patients.

It must also be emphasized that other authors did not find effectiveness on spatial attention tasks,3 and that poor generalization has been reported when PA used an upper-limb reaching task compared with a walking task.9 This later result suggests that PA be performed using more global tasks to draw clearer conclusions about its efficacy in SN patients.

**References**

Ineffectiveness of Prism Adaptation on Spatial Neglect Signs
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