INTRODUCTION

Patients affected by unilateral neglect tend to ignore stimuli located in the field opposite to the site of the brain lesion (contralesional neglect). This syndrome is usually more frequent, severe, and long-lasting after right-brain damage, resulting in left neglect (Robertson and Halligan, 1999). A few patients with right-brain damage have been described as showing ipsilesional right neglect (e.g., Robertson et al., 1994), while even more infrequently left ipsilesional neglect has been shown (e.g., Welman, 1969). Another common assumption is that neglect often affects both perceptual and mental representation domains (Bisiach and Luzzatti, 1978), suggesting the existence of a unitary system for imagery and visual processes (Kinsbourne, 1987; Bisiach, 1993). However, a few cases of dissociation between these two domains have been recently described (e.g., Guariglia et al., 1993; Beschin et al., 1997; Bartolomeo et al., 1994; Coslett, 1997), contributing to the idea that the neglect syndrome encompasses a spectrum of different forms and challenging the concept of neglect as a unitary syndrome (Stone et al., 1998).

We report the case of a left-brain damaged patient (CN) showing ipsilesional (left) neglect limited to the representational domain.

CASE REPORT

CN is a right-handed 79 year-old man with 5 years of formal education, who had suffered a cerebro-vascular accident. A CT scan showed a left parieto-occipital brain lesion caused by an infarct in the territory of the posterior cerebral artery. He showed right side weakness associated with right hemianopia, letter by letter reading with a few anomic errors and defective long-term verbal memory. Neglect was not directly investigated in the acute phase. However, no clinical evidence of neglect is reported in his medical record and no sign of perceptual neglect was observed in writing and in copying drawings. He came to our attention approximately one year after the stroke.

An MRI of the brain confirmed a single lesion of the left hemisphere whilst a SPECT scan revealed hypoperfusion of the left posterior area. He had recovered from his alexia and was within normal limits on the Token Test but he performed poorly on naming and verbal long-term memory tasks.

Extrapersonal and Personal Neglect Assessment

We did not formally assess CN’s performance on far extrapersonal neglect tests. However, when walking (with aid) CN never bumped into obstacles or changed trajectory at the last moment, suggesting that he did not neglect information located into the far left or right space.

CN performed at ceiling (100%) on Line and Star cancellation tests. He did not show perceptual neglect when asked to copy drawings and he read five sentences without flaw. When asked to indicate the midpoint of nine horizontal lines of different lengths, he made a leftward error of 11 mm, which is also within normal limits (Bradshaw et al., 1985).

Personal neglect was assessed by means of three standardised tests (the One Item test, the Fluff test and the Comb/Razor test) performed using the right hand and then the left hand. CN did not show evidence of personal neglect.

Representational Neglect

Drawings from Memory

On three occasions CN was asked to draw a clock from memory. He consistently drew digits on the right side of the clock, showing a clear representational left neglect (see Figure 1).

Clock Hands Position

CN was asked to state on which side (left or right) the hands of an imagined clock are displayed at a given time. He performed flawlessly when both the hands were on the right side (e.g., 2:20). However, when one or both hands were on the left side, latencies in responding increased and his accuracy decreased to 43% and 0%, respectively, as he consistently stated the wrong side.
Complex Scene Description

CN was asked to describe from memory a complex picture previously displayed for 3 minutes. On the immediate recall condition (after 15 seconds), CN reported 80% of right details but only 22% of left details. He provided a similar performance on the delayed recall (after 5 minutes) condition. However, when asked to describe one more time the same picture while it was on view (perceptual condition), CN reported 80% of right details and 89% of left details.

CONCLUSION

CN shows a neglect syndrome which is severe but limited to the representational domain. Some authors suggest that this type of dissociation may be the result of a different recovery in time for perceptual and representational neglect (Bartolomeo et al., 1994), thus supporting the idea of a unitary system responsible for imagery and visual processes. However, CN’s dissociation is hardly explained by this hypothesis as no evidence of perceptual neglect was observed even during the acute phase.

From an anatomical point of view, CN showed well-documented isolated left-brain damage associated with hypoperfusion of the same areas. So, contrary to the usual occurrence of a contralesional syndrome, his neglect affected the left (ipsilesional) side of mental images.

In summary, CN’s clinical picture combines two rare occurrences within the neglect syndrome, suggesting that disruptions of different aspects of visuo-spatial processes may be responsible for different forms of neglect. CN’s failure in generating or maintaining an adequate representation of the left side of images is now the subject of a more extensive investigation and the findings should provide a better understanding of what may be a complex, multifactorial syndrome (Stone et al., 1998).

REFERENCES


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Fig. 1 – CN’s typical clock drawn from memory.