Theory of Mind in Mild Traumatic Brain Injury

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Theory of mind (ToM) or the ability to think about other people’s mental states to understand and predict others’ behaviour is a part of social cognition. The social and communicative impairment is a natural consequence of ToM deficit. Those who have sustained a Traumatic Brain Injury (TBI) have been found to demonstrate difficulties in everyday social interactions and communications. The presence of these difficulties, which are thought to be associated with ToM deficits, raises the question of whether patients with TBI have impairment in ToM. The present study investigates ToM in eight adult subjects with frontal lobe damage, following mild TBI across first and second order tasks of ToM in Malayalam. The results add to the growing evidence that more attention should be focused on employing additional tests of ToM during evaluation and address these deficits during the management of communication and social deficits.

Keywords: Theory of mind, Traumatic Brain Injury, First order tasks, Second order tasks

Human behaviour is a system of complex and dynamic interactions requiring an innate, and highly developed cognitive capacity (Adolphs, 2001). In order to grasp and execute rules of this complex system, an aspect known as social cognition is required. Social cognition (or social intelligence) is defined as the ability to interpret others’ behaviour in terms of mental states, to conceptualise relationships between oneself and others, to use these concepts to guide one’s own behaviour, and predict that of others (Baren-Cohen et al., 1999). It has been suggested that this ability may be independent of general intelligence, with different information processing demands (Adolphs, 2001; Baron-Cohen et al., 1999). One key aspect of social cognition is Theory of mind (ToM). It refers broadly to the ability to understand others’ emotions, motivations, and thoughts and to understand their behavior accordingly (Bibby & McDonald, 2005). This ability helps an individual to think about other people’s mental states (eg. thoughts, beliefs, intentions, and desires) and use them to understand and predict others’ behaviour. A wide range of different approaches have been used to assess ToM. These approaches have varied in terms of factors such as subjects they were designed for (ranging from normal adults to children with autism) and their capacity to distinguish between different developmental levels of ToM (eg. first-order, second-order and applied uses of ToM inferences).

The specific mechanism and neural pathways of ToM are not well understood (Happe, Malhi, & Checkley, 2001) and remain controversial. A considerable amount of evidence from imaging studies has suggested that the frontal lobe activity is necessary for this ability (Goel, Grafman, Sadato & Hallett, 1995; Channon & Crawford, 2000). There are evidences that provide considerable support for the role of the right frontal lobes in ToM as well (Tranel, Bechara, & Denburg, 2002; Stuss, Gallup, & Alexander, 2001).

Theory of Mind is a part of social cognition, and social impairment is a natural consequence of a deficit in ToM. Specifically, a ToM deficit has been linked to difficulties using gestures to affect how others feel as well as taking account of others’ interests in conversation (Fletcher et al., 1995), withdrawal from social contact (Happe et al., 1995), insensitivity to social cues, indifference to others’ opinions, poor foresight, egocentrism, lack of restraint and inappropriate affect (Rowe, Bullock, Polkey, & Morris, 2001), pedantic speech, inappropriate non-verbal communication and inability to follow social rules (Bowler, 1992), and difficulty applying theoretical social knowledge to the real situation (Stone, Baron-Cohen & Knight, 1998). Furthermore, research has suggested that impaired ToM may also be