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Clinical case / Cas clinique

Agressive behavior after traumatic brain injury

Agressivité après traumatisme crânien

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Abstract

Introduction. – In cases of agitation and aggressive behavior after severe traumatic brain injury (TBI), the benefits/risks ratio of pharmacological treatments remains unclear. A qualitative analysis of clinical situations could highlight the relevance of psychotherapy care.
Case report. – In January 2005, this 24-year-old patient sustained severe traumatic brain injury (Glasgow at 4/15), with bilateral frontotemporal injury and temporal extradural hematoma. On the third day, a temporal lobectomy was performed. The patient's evolution showed severe neurobehavioral disorders, with agitation and aggressive behavior towards family members and medical caregivers. Maximum doses of antipsychotic drugs brought no improvement. Antidepressant medication improved social contact. Several stays in the psychiatric unit, where institutionalized and psychotherapy care were implemented, showed systematically a real improvement of the behavioral disorders, increased participation in group activities and the ability to walk around alone in a closed environment.
Discussion/conclusion. – Aggressive behavior can unveil organic brain injuries, depressive syndrome as well as iatrogenic nature of the environment. This clinical case is based on the fact that antipsychotic drugs, aside from their sedative effect, are not the proper treatment for agitation following traumatic brain injury. This case also highlights how management of behavioral disorders following TBI should not be based on pharmacological treatments only but instead should focus on multidisciplinary strategies of care.

Keywords: Severe traumatic brain injury; Aggressiveness; Behavior; Psychotherapy

Résumé

Introduction. – Dans les cas d'agitation et d'agressivité secondaire à un traumatisme crânien (TC) grave, le rapport bénéfice/risques des traitements médicamenteux est discuté. L'analyse qualitative de situations cliniques peut permettre de dégager l'efficacité de prises en charge psychothérapeutiques.
Observation. – Un patient de 24 ans présente en janvier 2005 un TC grave (Glasgow 4/15) avec des lésions intraparenchymateuses fronto-temporales bilatérales et un hématome extradural temporal gauche. À j3 une lobectomie temporale droite est réalisée. L'évolution est marquée par des troubles du comportement majeurs avec des gestes hétéroagressifs envers les soignants et la famille. Les troubles deviennent tels qu'il doit être maintenu dans sa chambre en dehors des activités de rééducation et des visites. Les neuroleptiques à posologie maximale sont inefficaces. Un antidépresseur permet une amélioration du contact. Plusieurs hospitalisations en psychiatrie, où une prise en charge institutionnelle et psychothérapique est mise en place, montrent systématiquement une amélioration nette des troubles du comportement, une possibilité de participation à des activités de groupe et de déambulation libre dans un espace fermé.
Discussion/Conclusion. – L'agressivité peut traduire les lésions cérébrales organiques, un syndrome dépressif, ainsi que le caractère iatrogène de l'environnement. Ce cas clinique appuie le fait que les neuroleptiques, en dehors de leur effet de sédation, ne sont pas un traitement efficace de l'agitation après TC. Il permet de mettre en évidence combien la prise en charge des troubles du comportement relève surtout de stratégies autres que médicamenteuses et est à la frontière avec d'autres spécialités.

Mots clés : Traumatisme crânien grave ; Agressivité ; Comportement ; Psychothérapie

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1. English version

1.1. Introduction

Traumatic brain injury (TBI) requires multidisciplinary care on both medical and social levels. The incidence of TBI is hard to assess. In United States it is estimated at 500/100,000 inhabitants, with no distinction in severity [5]. Jahouvey et al. reported the annual incidence of severe TBI due to traffic accidents at 13.7/100,000 inhabitants [18].

Severe TBI is responsible for chronic cognitive and behavioral disorders [9,36]. The latter can cause difficulties for a proper social integration and can sometimes be associated to mood disorders [2,6]. Behavioral disorders such as aggressiveness can be at the forefront of the clinical picture. Eleven to 34% of patients after TBI present with agitation or aggressive behavior [4,39,41]. These disorders can linger over time and become chronic [2,1].

There are some medication strategies available, yet the benefits/risks ratio is hard to assess due to the rare number of studies with a high level of scientific evidence found in the literature [41,13,33]. A pharmacological treatment is not the only alternative: Fayol in his review of the literature [11] listed the various prevention and non-pharmacological strategies. He differentiated the various approaches: behavioral, global and psychotherapeutic (including systemic) [27,42] often intertwined in clinical practice. The relevance of a psychological and cognitive approach has been highlighted [32]. However, very few data exist on the efficacy of these approaches due to the difficulty in conducting high quality studies.

The great diversity of existing psychotherapeutic models and techniques enable psychiatrists to bring a pathopsychological clinical response [31], even if the psychiatric nosography can find limits in the description and classifications of disorders secondary to TBI [12]. As reported by H. Oppenheim-Gluckman [31], psychiatry had progressively turned away from the management of patients after TBI to propose alternatively for the past twenty years new approaches at the frontiers of neurology, neuropsychology, physical medicine and rehabilitation (PM&R) and psychiatry. At the crossroads of all these specialties we can find the issue of ''behavioral disorders'' [31]. In fact this ''dual'' vision separating the ''soma'' from the ''psyche'' would not work in case of behavioral changes after trauma (both in the physical and psychological sense) such as TBI affecting the patient and his/her loved ones.

Taken into account the great methodological difficulty, in this field, to conduct studies on homogeneous cohorts and according to the relevance of a qualitative study extended over several years, we report here the clinical case of a patient with TBI who had access to a combination of PM&R and psychiatry care with positive results.

1.2. Clinical case presentation

Mr. X, 24-year-old, the youngest of three children, his sisters were at the time of the initial injury 26- and 30-year-old respectively. He had no previous relevant history, did not take any medical treatment. He had been living with his girlfriend for the past four years and worked as an assembly line worker. On January 22nd, 2005 he was involved in a traffic accident responsible for severe TBI; he was driving. The initial Glasgow score was 4/15, the CT-scan showed bilateral frontotemporal brain injuries and extradural temporal hematoma on the left side. The patient had emergency surgery. Postoperative follow-up showed severe intracranial hypertension (IH), up to 50 mmHg, in spite of medical treatment at maximum dosage. Brain MRI showed enhanced mass effect with severe diffuse bilateral lesions and large hemorrhaging hematoma on the right temporal lobe. At day 3, due to the uncontrollable intracranial pressure, a lobectomy of the right temporal lobe was performed by the surgical team. Following surgery IH gave way and the arousal phase started. The tracheotomy was taken out on April 5th 2005 and the patient was transferred to the PM&R centre on April 7th 2005.

Upon admission the patient had very few spontaneous movements; there were no obvious motor impairments. Oral expression was reduced to screams and grunts. The patient did not seem to recognize his loved ones. The patient was fed through a gastrostomy tube.

The evolution validated the lack of motor impairments but alongside the improvement of motor capacities the cognitive and behavioral disorders became more obvious. Brain MRI done on April 22nd 2005 showed dilatations of the ventricles with right-sided frontotemporal gliosis (Fig. 1). Based on the hypothesis of hydrocephalus being the potential and curable cause of this slow arousal we started mid-June 2005 with repeated spinal taps to drain excessive CSF to no avail. There was no evidence of pain, spontaneous or provoked. The gastrostomy tube was taken out in November 2005 returning to normal feeding without swallowing disorders. Standing and walking were initiated during the month of August 2005. However, right from the beginning of the arousal process the following symptoms appeared: disorganized psychomotor agitation, screams and aggressive gestures towards the medical staff, at first during invasive procedures such as injections but also during nursing care.

At the end of 2005, 12 months after the initial injury, the patient did not seem to have recovered from posttraumatic amnesia. There were no motor impairments. The contact with the patient was quite difficult to establish and needed to be very progressive. The patient's oral communication consisted in incomprehensible words, swears words, or continuous screaming, sometimes some paraphasias. Oral comprehension could not be formally tested. Simple orders did seem to be understood by the patient. The use of daily life objects (fork, comb) was inadequate and there seemed to be praxis disorders as well. On a behavioral level, there was a non-directed agitation but also some ''directed'' aggressive gesture (towards any type of nursing care, or due to frustration). There was associated bulimia, non-selective polyphagia, hyperorality, inappropriate urination/defecation behaviors and sexual conduct disorders (e.g. masturbating in public). The patient also developed stereotyped motor disorders, prolonged crouch-down position on the bed,