Neuropsychology of perpetrators of domestic violence: the role of traumatic brain injury and alcohol abuse and/or dependence

Ángel Romero-Martínez, Luis Moya-Albiol

Introduction. Neuropsychological impairments of the executive functions, memory, attention, intelligence quotient, and empathy have been found in perpetrators of domestic violence (intimate partner violence). These impairments could be partially explained by alcohol abuse, dependence, or traumatic brain injuries.

Aims. This study reviews the neuropsychological deficits of perpetrators of intimate partner violence. At the same it seeks to integrate and relate these main points with their neuroanatomical correlates. We have also established the relationship between alcohol abuse, dependence, brain damage (including traumatic brain injuries) and those deficits.

Development. Scientific literature has been reviewed by means of Google Scholar, PsycINFO, PubMed, Medline and ISI Web of Knowledge.

Conclusions. Perpetrators of domestic violence present high mental rigidity, as well as low levels of inhibition, processing speed, verbal and attention skills, and abstract reasoning. Additionally, perpetrators show working and long play memory impairments. Moreover, those deficits could be impaired by traumatic brain injuries and alcohol abuse and/or dependence. Nonetheless, these both variables are not enough to explain the deficits. Functional abnormalities on the prefrontal and occipital cortex, fusiform gyrus, posterior cingulate gyrus, hippocampus, thalamus and amygdala could be associated with these impairments. An analysis of these mechanisms may assist in the development of neuropsychological rehabilitation programmes that could help improve current therapies.

Key words. Alcohol. Domestic violence. Neuropsychology. Perpetrator. Traumatic brain injury.

Department of Psychobiology. University of Valencia. Valencia, Spain.

Corresponding author:
Dr. Luis Moya Albiol. Department of Psychobiology. University of Valencia. Avda. Blasco Ibáñez, 21. E-46010 Valencia (Spain).

Fax:
+34 963 864 668.

E-mail:
luis.moya@uv.es

Funding:
The implementation of this study has been partially made possible by funding from the Ministry of Health, Social Services and Equity, National Drug Plan (2012/001) and the Valencian Government of Education, Culture and Sports (PROMETEO/2011/048).

Accepted:
12.06.13.

How to cite this paper:
Romero-Martínez A, Moya-Albiol L. Neuropsychology of perpetrators of domestic violence: the role of traumatic brain injury and alcohol abuse and/or dependence. Rev Neurol 2013; 57: 515-22.

Versión española disponible en www.neurologia.com

Introduction

From the psychosocial and personality psychology perspectives, the profile of the abuser is well described. Two of the characteristic traits are high emotional dependence and low assertiveness and self-esteem. Furthermore, abusers harbour hostile cognitive schemes with degrading and sexist attitudes towards women and inappropriate feelings toward themselves and toward their partners that result in pathological jealousy. In addition to these cognitive mechanisms, excessive alcohol consumption and/or drug abuse can exacerbate the problem, leading to an inability to resolve conflicts through mature mechanisms and instead triggering violent behaviour [1].

The absence of a definitive and systematic theoretical framework for the neuropsychology of violent people, specifically men who commit violence against their intimate partners, complicates the comprehension of their characteristic neuropsychological deficits; specifically, deficits fundamentally affect executive functions, memory, attention and various intellectual abilities [2]. Furthermore, violent people frequently present with deficiencies in empathy and/or the processes of decoding emotions [3]. Delving deeper into these characteristics would allow for a better understanding of the factors that precipitate violence in this population.

One aspect that is used frequently to analyse the animas of men who are indicted with charges related to domestic or intimate partner violence is their experience as a childhood victim or witness to violence. The fact of having suffered abuse and/or neglect during childhood may have contributed to the development of a brain predisposed to violence due to the development of the personality factors discussed above, as well as structural anomalies and/or hypo-functionalities that underlie the cognitive deficits mentioned above; moreover, when these factors are considered, the probability that these individuals will abuse women and children in the household increases significantly. Therefore, aside from individual differences and environmental factors, as well as social and genetic factors involved in the consequences of abuse, there are neurobiological mechanisms that influence both short and long-term brain development [4]. Notable among these

are structural changes such as alterations in the hippocampus, amygdala, cerebellum, corpus callosum and cerebral cortex. Functionally, there are cognitive sequelae, high levels of psychosocial stress, behavioural difficulties and social problems associated with various psychopathologies. These alterations are modulated by variables such as the type of abuse and sex of the child that could contribute to the perpetuation of violence [4].

Furthermore, there has been no consideration of how cognitive impairment could interfere with the use of and/or adherence to programs in the short-term and recidivism and abuse prevention in the long-term. These programs attempt to rehabilitate abusers through diverse and inclusive methods that employ cognitive-behavioural or supportive therapy, as well as both individual and/or group therapy, and they apply frameworks from the judicial system/prisons. Although the recidivism rate of those who complete the program is below 40%, a high percentage (between 50% and 75%) of participants leave the initial therapy sessions [5]. Thus, knowledge of the subjects' cognitive impairment could help to improve the treatments and prevent recidivism.

The prevalence rates of head injury and alcohol consumption are high, and these could be related to a history of abuse in some cases because they might trigger cognitive impairments that facilitate abusive behaviours [2]. With the above-mentioned considerations, we intend to provide a synthesis of scientific literature that has analysed neuropsychological deficits in men who commit violence against women. We first describe the main findings regarding the altered neuropsychological domains of abusers. Next, we present the most relevant findings regarding the roles of the principal variables that affect these deficits, such as head injury and alcohol abuse/dependence. Finally, while accounting for existing data about the altered functioning of the different brain structures that underlie these deficits, we analyse the possible existence of central nervous system (CNS) organ damage and/or hypofunctionality.

Literature search parameters

A review of the literature on the existence of neuropsychological deficits in offenders was conducted in the Google Scholar, PsycINFO, PubMed, Medline and ISI Web of Knowledge databases.

Terms used in the search included 'alcohol', 'neuropsychology', 'intimate partner violence', 'biological correlates', 'empathy', 'executive functions', 'cognitive deficits', 'intelligence' and 'head injury'. Articles that appeared to mention biological variables in this population without addressing neuropsychological variables were discarded.

Neuropsychological domains

Executive functions

Executive functions are high-level cognitive functions that are involved in planning, initiation, regulation and behaviour management [6]. Therefore, alterations in executive functions may decrease behavioural control and lead to the adoption of risky behaviours and pleasure seeking in a context of extreme impulsivity, anxiety and aggression [7]. This poor behavioural regulation would, in turn, reinforce immediate gratification, regardless of the positive or negative future consequences. Thus, deficits in executive functions often lead to a failure to use available information to predict the consequences of the behaviour [8]. To date, research studies have described lower levels of cognitive flexibility in abusers as assessed by the Wisconsin Card Sorting Test (WCST); abusers made more errors and completed fewer categories than did control subjects [10]. Subsequent studies replicated and expanded these results, noting that abusers made more perseverative errors (e.g., maintained a classification criterion despite being informed that it was wrong) [11,12] and failed to maintain an attitude that valued 'attention span' maintenance [13]. Before these studies, researchers thought of abusers as a uniform group, without establishing typologies based on personality traits. However, according to the Holtzworth-Munroe classification [14], there are four groups of abusers that are differentiated according to the general seriousness of domestic violence as well as the presence of psychopathology. The first group is characterised by low levels of aggression outside the home, the absence of psychopathology and 'family only' drug use (only within the domestic sphere). Abusers who showed moderate to high levels of violence inside and outside the home, substance abuse, borderline personality traits, jealousy and impulsivity comprised the second group and were called 'borderline-dysphoric' (limited-dysphoric type). The third group encompassed those with high aggression both inside and outside the domestic sphere, drug use and antisocial personality traits, as well as favourable attitudes towards violence. Finally, the fourth group comprised those who reported moderate violence inside and outside

the domestic sphere and antisocial traits and was called 'low-level antisocial'. Under this classification, a recent study found that the limited-dysphoric and antisocial types, or those who were more violent, committed more errors in the WCST than did the other two types of abusers [15]. However, a previous study revealed that, in a classification based on the severity of the attacks (attacks were rated on a scale of social conflict that assessed the types and frequencies of the strategies used to resolve conflicts with a member of the family), the less violent offenders committed more perseverative errors and completed fewer categories than the most violent individuals [11]. Although there is general agreement in the reporting of lower cognitive flexibility among abusers, a study found no significant differences between abusers and members of the general population who took the WCST [16].

The processes of inhibition and interference control can be evaluated by cognitive tasks in which participants must avoid responding to certain stimuli for which the information is in conflict, as in the Stroop Colour-Word Test and go/no go test. Abusers have poorer performances or lower inhibition capacities in the Stroop test [10], which is related to the perpetration of more severe violence [17]. The same results were found in another study that used the Hayling and Brixton tests, which assess verbal inhibition [18]. Moreover, it was also observed that abusers underestimated the disappearance time of a stimulus when using the Walter Reed Performance Assessment [19]. Thus, the empirical evidence confirmed that abusers have a lower inhibition capacity. However, the applications and results from the Stroop test must be analysed with caution because not all studies have found differences between the groups [11,16]. In the results of a go/no go task type, abusers with greater sensitivity to punishment showed a lower inhibition capacity as defined by a worse performance [20].

Processing speed and attention can be alternately evaluated by the Trail Making Test, which consists of two parts (A and B). Abusers have been reported to consistently spend more time and make more errors than the controls in part B [11,13,16, 17,19,20]. This lower processing speed has been associated with the perpetration of more physical violence, and due to a high level of sensitivity to feeling humiliated by their partners, abusers feel justified in their violent behaviour [17,20]. Although part B of the Trail Making Test can discriminate between abusers and non-violent subjects, one study demonstrated that poor focus-execution performance, as demonstrated by increased numbers of errors and required testing time in part A [11]. However, the vast majority of studies state that part A does not discriminate between abusers and non-violent subjects [13,16,17,19].

Finally, decision-making is assessed by the Iowa Gambling Task. Abusers obtained lower scores in this task, which could indicate a poorer ability to make decisions [11,20].

Memory and attention processes

It has been shown that abusers are more sensitive to humiliation by their spouses, see this as justification of their violent behaviour and are insensitive to punishment. Abusers also demonstrated worse auditory working memory performance, specifically in the letter and number tasks of the third edition of the Wechsler Adult Intelligence Scale (WAIS-III) [20]. The results obtained for abusers' working visual memory were similar to those of the auditory modality and were reported as worse performances on the coding key numbers subtest of the revised form of this test (WAIS-R) [19,22].

Long-term memory performance for nonverbal information can be assessed by the Selective Reminding Test. In a performance analysis, abusers had more trouble retrieving and storing information. Moreover, these deficits were not only limited to nonverbal information but also to the process of facial and word recognition as assessed by the Warrington Recognition Memory Test [22].

Memory deficits in abusers were associated with increased forgetfulness of the violent acts they had committed; those who had greater delays in word recall in the California Verbal Learning Test presented with greater memory lapses regarding the frequency of events of physical aggression they had demonstrated against their partners [21]. However, no differences in this test were identified in comparisons of abusers with different levels of aggressiveness and control subjects [11]. Deficiencies in memory processes are not homogeneous because those with less aggressive offenses performed better when recalling digits in reverse order, compared to the more aggressive offenders and even to the controls [11]. Therefore, memory deficits do not appear to extend to the most abstract information such as digits. At minimum, less aggressive abusers according to the social conflict scale did not use physical violence and had fewer arrests.

Moreover, sustained attention is observed to deteriorate, as when divided, in abusers, according to the Paced Auditory Serial Addition Test and the Adaptive Rate Continuous Performance

Test [19]. However, a subsequent study found no differences between abusers and the general population in the Continuous Performance Test [11]. Therefore, at the present time, there is no agreement regarding the existence of deficits in sustained attention.

Intelligence quotient

Deficits have been described in the intelligence quotient (IQ) verbal scale as assessed by the Shipley vocabulary test and are most pronounced in the most violent offenders [11]. Further, worse performance was associated with an increased risk of physical and psychological abuse in the limited-dysphoric groups and antisocial groups, as classified by Holtzworth-Munroe [14]. These results have been replicated in other studies in which verbal intelligence was assessed according to the WAIS-III vocabulary scale [17-19]. Deficits are not limited to verbal abilities but also extend to the ability to abstractly analyse subscale cubes in the WAIS-III [17,18]. The more impaired the capacity for abstraction, the higher the severity of attacks in the most violent abusers [15,17]. Finally, impairment also extends to verbal comprehension ability, according to the verbal subscale of the WAIS-III [19]. With regard to all of these findings, it has been recently suggested that, in abusers, deficits in cognitive flexibility and emotional decoding could be related [12].

Empathy

Abusers can be categorised into different types according to the greater or lesser degree of impairment in cognitive components and/or emotional empathy [23]. The major deficits can be limited to basic processes that underpin empathy. In line with this hypothesis, abusers with antisocial and generally violent personality traits had greater deficits in decoding processes and/or recognition of facial expressions [24]. In this sense, the greatest risk of abuse in limited-dysphoric type abusers has been associated with less positive discrimination of their partners' facial emotions. For offenders with psychopathic traits, the mediator variables were deficits in recognising expressions of fear [25]. The process of decoding and/or recognising facial expressions is essential to inferring the thoughts, intentions and feelings of others [24]. A recent study that used the Interpersonal Reactivity Index revealed that, in abusers, a reduced ability to recognise facial expressions was associated with a lower ability to understand the perspective or position of others. However, abusers did identify with greater feelings of personal distress or discomfort to others' negative experiences. This latter dimension may occur without cognitive understanding and could be defined as proto-empathy rather than true emotional empathy. Therefore, the negative relationship between the two processes could be explained by the argument that the greater degree of emotional discrimination expressed by the other person, the lower the risk of misinterpreting alien emotions and experiencing frustration or hostile feelings due to the inability to understand [12].

Head injury and alcohol abuse: contributing factors to neuropsychological deficits

A recent meta-analysis showed that approximately 53% of offenders had suffered a head injury during their lifetime, with losses of consciousness that ranged from minutes to months. This statistic is significantly higher than that of the general population, which ranges from 10% to 38.5% [26]. Additionally, having suffered a head injury and a low verbal IQ are better predictors of physical abuse than socio-demographic variables such as age, educational level and even income [15]. Abusers who have suffered a head injury during their lives have lower IQs and lower attention, motor speed and coordination, visual scanning and cognitive flexibility scores, compared to those who have not experienced a head injury [10, 27]. In addition to comparing abusers vs. controls with and without head injury, the more aggressive abusers were those that had the highest ratios of head injury and higher verbal IQ deficits [15]. The majority of studies that have analysed neuropsychological variables in abusers indicated that approximately 50% of the abusers experienced a head injury with loss of consciousness during their lifetime [13,15,18,20,21,27,28]. However, it has been suggested that although the head injury is a potent predictor of abuse, it is not sufficient to explain all of the neuropsychological deficits presented by abusers [22]. Impairments have been observed in the various cognitive domains of offenders who did not experience any episodes of head injury [11,12,20]. Head injury also seems to be positively related to the consumption and/or abuse of alcohol, while its relationship to child abuse is also positive but weaker. Therefore, the connection between alcohol and head injury exponentially increases the risk of inflicting abuse [28].

A high percentage of abusers abuse and/or depend on alcohol and/or other substances. Although

the remaining abusers do not abuse these substances, they may have committed violent acts while under the influence [2]. A recent study found that the most violent offenders are those with a greater dependence on alcohol and/or other substances [15]. The perpetration of violent acts under the influence of alcohol might be explained by the hypothesis of the Alcohol Myopia Model (AMM) [29], which states that alcohol impairs attention-dependent cognitive processing. Thus, by restricting the perception of external and internal information, the focusing of conscious perception on a small number of salient stimuli to neglect some information increases the likelihood of a violent reaction [30]. Due to the nature of alcohol, many cognitive skills are affected by chronic use. In this sense, we found that the existence of deficits in cognitive-behavioural functions that resulted in worse academic performance could be explained by deficits in working memory, attention, verbal learning [31-33], decision making [34] and verbal skills [35], as well as short- and long-term memory [36]. Of all the deficits present in alcoholics, the most extensively studied have been executive function and memory, mainly because of their greater vulnerability to the toxic effects of alcohol as well as to the importance of social adequacy, the disease prognosis and the subjective complaints of patients whose own lives have been seriously hampered by inadequate decisions [37]. Executive function was found to play a role as a mediator in aggression after alcohol consumption; thus, in cases with larger deficits, there will be worse impulse control and/or anticipation of the consequences, thereby facilitating the expression of aggressive behaviour [38].

Neuronal correlates of abuse

To date, there is a gap in the scientific literature with regard to the neural correlates that underlie the neuropsychological testing deficits observed in abusers. A study indicated that hyperresponsiveness is present in the hippocampus, fusiform gyrus, posterior cingulate gyrus, thalamus and occipital cortex prior to the threat of aggression. In couples, we also observed greater bilateral precuneus activation in response to stimuli that simulated violent attacks. Finally, positive stimuli produced greater activation in the orbitofrontal cortex, anterior cingulate and right inferior parietal hemisphere [39]. Many of these structures and in particular, the different prefrontal cortex regions, underlie the deficits in executive function [9]. Therefore, it is likely that abusers have structural deficits in these regions. As previously noted, a significant percentage of abusers have suffered some head injury in childhood during a critical period for CNS development. Different brain structures such as the hippocampus, amygdala, cerebellum, corpus callosum and cerebral cortex appear to be altered in people who have suffered child abuse, which may facilitate the expression of violence during adulthood and perpetuate the cycle of violence [4]. Moreover, deficits in empathy and increased violence would strengthen the hypothesis that these share some neural circuits [40]. The same functional brain abnormalities might lie at the root of distortions in empathy and greater violence.

Conclusions

The deficits described thus far allow a deeper understanding of violence perpetration and recidivism in offenders. Most of the studies have focused on deficiencies in executive functions and the importance of social adaptation [6]. Reduced cognitive flexibility in abusers explains the maintenance of sexist roles and other rigid behaviours that may continue even after the completion of intervention programs. Additionally, low inhibition and slow processing speeds underlie abusers' poor ability to make decisions, resulting in a lack of valuation of behavioural consequences. All of these deficits are related to memory, specifically working memory, which is impaired yet essential for executive function [6]. Along this point, the risk of violence is greater when the verbal and abstraction abilities are the most affected; the existence of head injury is a possible mechanism that could underlie these deficits. Thus, difficulties in expressing thoughts, ideas and/or emotions might be critical to the use of violence, due to a lack of modes with which to appropriately channel and/or express these internal states. Verbal difficulties, together with depleted care processes, lead to an inability to distinguish emotional facial features and therefore contribute to the misinterpretation of emotions and a lower margin of doubt, and ultimately to the misreading of these facial features as hostile because there is a bias towards hostile intentions.

Increased activation in cortical regions of the right hemispheres of abusers in response to positive stimuli could be understood as an indicator of the increased right lateralisation of emotion processing, at least in a positive sense. However, the literature argues that at the cortical level, the pro-

cessing of positive emotions would be lateralised to the left hemisphere and negative in the right [41]. Therefore, this abnormal activation pattern is what would underlie abusers' biases toward processing emotional information as hostile.

The hyperresponsiveness to threatening stimuli at the cortical and subcortical levels and deficits in neuropsychological tests, mainly those that assess executive functions, could be explained by alterations in different regions of the prefrontal cortex and/or communication with structures such as the amygdala (important for emotional regulation). In turn, the poor memory and attention performances could be explained by alterations in the hippocampus, a structure that would be damaged by head injury, which a considerable number of abusers have suffered during their childhood. Alterations to these neural structures would explain both excessive violence and the lack of empathy.

An important limitation of the studies to date is the absence of a homogeneous population because there is much diversity in the relevant variables, which include academic level, economic status, ethnicity and substance use/abuse history. Moreover, in many cases, the abusers are drug addicts who are in various stages of rehabilitation, which would affect neuropsychological assessment. Moreover, much of the research has been conducted on small samples. The absence of a unique neuropsychological battery test that allows for only a homogeneous assessment increases the need for further elaboration. This would complete and ratify the neuroimaging findings and provide intervention strategies to address improving the cognitive deficits. Testing could thus be best achieved with interventions according to comprehensive protocols that would include neuropsychological assessments and neuroimaging techniques.

References

1. Farrell HM. Batterers: a review of violence and risk assessment tools. J Am Acad Psychiatry Law 2011; 39: 562-74.
2. Pinto LA, Sullivan EL, Ronsebaum A, Wyngarden N, Umhau JC, Miller MW, et al. Biological correlates of intimate partner violence perpetration. Aggress Violent Behav 2010; 15: 387-98.
3. Holtzworth-Munroe A, Smutzler N. Comparing the emotional reactions and behavioral intentions of violent and nonviolent husbands to aggressive, distressed, and other wife behaviors. Violence Vict 1996; 11: 319-39.
4. Mesa-Gresa P, Moya-Albiol L. Neurobiología del maltrato infantil: el 'ciclo de la violencia'. Rev Neurol 2011; 52: 489-503.
5. Echeburúa-Odriozola E, Sarasua-Sanz B, Zubizarreta-Anguera I, Amor-Andrés PJ, De Corral-Gargallo P. Variables predictoras del rechazo, abandono y fracaso terapéutico en hombres violentos contra su pareja tratados psicológicamente en un marco comunitario. Int J Clin Health Psychol 2010; 10: 403-20.
6. Tirapu-Ustárroz J, Muñoz-Céspedes JM, Pelegrín-Valero C, Albéniz-Ferreras A. Propuesta de un protocolo para la evaluación de las funciones ejecutivas. Rev Neurol 2005; 41: 177-86.
7. Heinz AJ, Beck A, Meyer-Lindenberg A, Sterzer P, Heinz A. Cognitive and neurobiological mechanisms of alcohol-related aggression. Nat Rev Neurosci 2011; 12: 400-13.
8. Verdejo A, Orozco-Giménez C, Meersmans Sánchez-Jofré M, Aguilar de Arcos F, Pérez-García M. Impacto de la gravedad del consumo de drogas de abuso sobre distintos componentes de la función ejecutiva. Rev Neurol 2004; 38: 1109-16.
9. Tirapu-Ustárroz J, Ríos-Lago M, Maestú-Unturbe F. Manual de neuropsicología. Barcelona: Viguera; 2011.
10. Teichner G, Golden CJ, Van Hasselt VB, Peterson A. Assessment of cognitive functioning in men who batter. Int J Neurosci 2001; 111: 241-53.
11. Easton CJ, Sacco KA, Neavins TM, Wupperman P, George TP. Neurocognitive performance among alcohol dependent men with and without physical violence toward their partners: a preliminary report. Am J Drug Alcohol Abuse 2008; 34: 29-37.
12. Romero-Martínez A, Lila M, Sariñana-González P, González-Bono E, Moya-Albiol L. High testosterone levels and sensitivity to acute stress in perpetrators of domestic violence with low cognitive flexibility and impairments in their emotional decoding process: a preliminary study. Aggress Behav 2013; 39: 355-69.
13. Stanford MS, Conklin SM, Helfritz LE, Kockler TR. P3 amplitude reduction and executive function deficits in men convicted of spousal/partner abuse. Persand Individ Dif 2006; 43: 365-75.
14. Holtzworth-Munroe A, Meehan JC, Herron K, Rehman U, Stuart GL. Do subtypes of maritally violent men continue to differ over time? J Consult Clin Psychol 2003; 71: 728-40.
15. Walling SM, Meehan JC, Marshall AD, Holtzworth-Munroe A, Taft CT. The relationship of intimate partner aggression to head injury, executive functioning, and intelligence. J Marital Fam Ther 2012; 38: 471-85.
16. Westby MD, Ferraro FR. Frontal lobe deficits in domestic violence offenders. Genet Soc Gen Psychol Monogr 1999; 125: 71-102.
17. Schafer J, Fals-Stewart W. Spousal violence and cognitive functioning among men recovering from multiple substance abuse. Addict Behav 1997; 22: 127-30.
18. Marsh NV, Martinovich WM. Executive dysfunction and domestic violence. Brain Inj 2006; 20: 61-6.
19. Cohen RA, Brumm V, Zawacki TM, Paul R, Sweet L, Rosenbaum A. Impulsivity and verbal deficits associated with domestic violence. J Int Neuropsychol Soc 2003; 9: 760-70.
20. Bueso-Izquierdo N, Burneo-Garcés C, Hidalgo-Ruzzante N, Moreno-Ramos L, Ruz-Fernández A, Berzosa-Sáez C, et al. El papel de la neurociencia en la violencia de género. 3.er Congreso para el Estudio de la Violencia contra las Mujeres. Noviembre de 2012. URL: http://www.congresoestudio-violencia.com/2012/articulo23.php. [11.03.2013].
21. Cohen RA, Rosenbaum A, Kane RL, Warnken WJ, Benjamin S. Neuropsychological correlates of domestic violence. Violence Vict 1999; 14: 397-411.
22. Medina KL, Schafer J, Shear PK, Armstrong TG. Memory ability is associated with disagreement about the most recent conflict in polysubstance abusing couples. J Fam Viol 2004; 19: 381-90.
23. Covell CN, Huss MT, Langhinrichsen-Rohling J. Empathic deficits among male batterers: a multidimensional approach. J Fam Viol 2007; 22: 165-74.
24. Babcock JC, Green CE, Webb SA. Decoding deficits of different types of batterers during presentation of facial affect slides. J Fam Viol 2008; 23: 295-302.
25. Marshall AD, Holtzworth-Munroe A. Recognition of wives' emotional expressions: a mechanism in the relationship between psychopathology and intimate partner violence perpetration. J Fam Psychol 2010; 24: 21-30.
26. Farrer TJ, Frost RB, Hedges DW. Prevalence of traumatic brain injury in juvenile offenders: a meta-analysis. Child Neuropsychol 2013; 19: 225-34.
27. Rosenbaum A, Hoge SK, Adelman SA, Warnken WJ, Fletcher KE, Kane RL. Head injury in partner-abusive men. J Consult Clin Psychol 1994; 62: 1187-93.

28. Rosenbaum A, Hoge SK. Head injury and marital aggression. Am J Psychiatry 1989; 146: 1048-51.
29. Steele CM, Joseph RA. Alcohol myopia: its prized and dangerous effects. Am Psychol 1990; 45: 921-33.
30. Giancola PR, Duke AA, Ritz KZ. Alcohol, violence, and the Alcohol Myopia Model: preliminary findings and implications for prevention. Addict Behav 2011; 36: 1019-22.
31. López-Frías M, Fernández MF, Planells E, Miranda MT, Mataix J, Llopis J. Alcohol consumption and academic performance in a population of Spanish high school students. J Stud Alcohol 2001; 62: 741-4.
32. Zeigler DW, Wang CC, Yoast RA, Dickinson BD, McCaffree MA, Robinowitz CB, et al; Council on Scientific Affairs, American Medical Association. The neurocognitive effects of alcohol on adolescents and college students. Prev Med 2005; 40: 23-32.
33. Bookstein FL, Streissguth AP, Sampson PD, Connor PD, Barr HM. Corpus callosum shape and neuropsychological deficits in adult males with heavy fetal alcohol exposure. Neuroimage 2002; 15: 233-51.
34. Stout JC, Rock SL, Campbell MC, Busemeyer JR, Finn PR. Psychological processes underlying risky decisions in drug abusers. Psychol Addict Behav 2005; 19: 148-57.
35. Beatty WW, Tivis R, Stott HD, Nixon SJ, Parsons OA. Neuropsychological deficits in sober alcoholics: influences of chronicity and recent alcohol consumption. Alcohol Clin Exp Res 2000; 24: 149-54.
36. Paraskevaides T, Morgan CJ, Leitz JR, Bisby JA, Rendell PG, Curran HV. Drinking and future thinking: acute effects of alcohol on prospective memory and future simulation. Psychopharmacology 2010; 208: 301-8.
37. Landa N, Fernández-Montalvo J, Tirapu-Ustárroz J. Neuropsychological impairments in alcoholism; reviewing working memory and executive cognitive functioning. Adicciones 2004; 16: 41-51.
38. Giancola PR. Executive functioning: a conceptual framework for alcohol-related aggression. Exp Clin Psychopharmacol 2000; 8: 576-97.
39. Lee TM, Chan SC, Raine A. Hyperresponsivity to threat stimuli in domestic violence offenders: a functional magnetic resonance imaging study. J Clin Psychiatry 2009; 70: 36-45.
40. Moya-Albiol L, Herrero N, Bernal MC. Bases neurales de la empatía. Rev Neurol 2010; 50: 89-100.
41. Beraha E, Eggers J, Hindi Attar C, Gutwinski S, Schlagenhauf F, Stoy M, et al. Hemispheric asymmetry for affective stimulus processing in healthy subjects–a fMRI study. PLoS One 2012; 7: e46931.

Neuropsicología del maltratador: el rol de los traumatismos craneoencefálicos y el abuso o dependencia del alcohol

Introducción. Gran parte de los hombres que ejercen maltrato contra sus parejas presentan déficits en funciones ejecutivas, memoria y atención, capacidades intelectuales y empatía. Dos factores coadyuvantes a estas deficiencias son los traumatismos craneoencefálicos y el abuso de alcohol.

Objetivo. Revisar y recapitular los resultados obtenidos sobre los déficits neuropsicológicos en maltratadores y relacionarlos con los correlatos neuroanatómicos implicados en las funciones alteradas. Se enfatiza el papel de los traumatismos craneoencefálicos y el abuso o la dependencia del alcohol, así como la posible existencia de daño orgánico cerebral.

Desarrollo. Se ha revisado la bibliografía científica usando los buscadores Google Scholar, PsycINFO, PubMed, Medline e ISI Web of Knowledge.

Conclusiones. Los maltratadores presentan un detrimento de la flexibilidad cognitiva, la capacidad de inhibición, la velocidad de procesamiento y las habilidades verbales. Además, muestran una atención pobre, una baja capacidad de abstracción y una limitación en las habilidades mnémicas, tanto de la memoria de trabajo como a largo plazo. Los traumatismos craneoencefálicos y el abuso o la dependencia del alcohol exacerban los déficits ya presentes en los maltratadores, pero no son suficientes *per se* para explicarlos. Estos déficits podrían ser producto de un funcionamiento anormal de estructuras como los córtex prefrontal y occipital, el giro fusiforme y el cingulado posterior, el hipocampo, el tálamo y la amígdala. La comprensión de dichos mecanismos favorecería el desarrollo de terapias de rehabilitación neuropsicológica coadyuvantes a las terapias establecidas hoy en día.

Palabras clave. Alcohol. Maltratador. Neuropsicología. Traumatismo craneoencefálico. Violencia doméstica.