84 - WERNICKE–KORSAKOFF SYNDROME, SUBSTANCE USE AND ABUSE: NEUROPSYCHOLOGICAL AND PSYCHOMOTOR EFFECTS.

RACHEL SCHLINDWEIN-ZANINI;
GECIELY MUNARETTO FOGAÇA ALMEIDA;
LARA COLOGNESE HELEGDA;
KEILA CÓRDOVA FERNANDES;
Universidade Federal de Santa Catarina – UFSC. Florianópolis/SC/Brasil
rachelsz@floripa.com.br

INTRODUCTION

Chemical substances incorporate into the human organism and they are capable of modifying diverse functions (as perception, behavior and motricity), having reactions that are mainly conditioned by social, economic and cultural aspects that, according to Romaní (1999), are generated by social groups. The group of psychoactive, psychotropic drugs and abuse includes medications (that alter mood, perception, behavior, cognition, the functioning of the Central Nervous System), alcohol, cocaine, crack, solvent, marijuana, heroin, lysergic acid (LSD), amphetamines, tobacco and ecstasy, for example.

The disturbances related to the consumption of psychoactive substance are among the most common psychiatric pathologies. In a study carried out in three Brazilian capitals (Brasilia, São Paulo and Porto Alegre), improper use of alcohol was detected in almost 10% of the population, and more than half of this was not treated (Almeida-Son et al., 1992). Alcohol misuse is the comorbidity most associated with bipolar disorder (VIETA et al., 2001). In the cocaine consumption case, it is estimated that 14 million people in the world misuse it (UNODC, 2003).

According to World Health Organization (2001), chemical dependency must be seen simultaneously as a chronic medical condition and a social problem. It is shown as a mental state and – frequently - physical that generates the interaction between a living organism and a drug, creating a compulsion for taking the substance and experiencing its psychic effect, preventing the drug's withdrawn sensation.

The main characteristic of substance dependency, according to American Psychiatric Association (2000), refers to the presence of a set of cognitive, behavior and physiological symptoms, which shows that the individual continues to use a particular substance, despite the significant health, personal and social problems that comes from it. Thus, a standard of repeated self-administration generally results in tolerance, abstinence and compulsory behavior by consuming the drug.

Chemical dependency causes the necessity to constantly obtain the drug and it also induce to major changes in the relationship between the user and his or her family, harming socialization and professional life, requiring a therapeutic intervention using multiprofessional team. For Blefari (2002), the factors that influence in the insertion of chemical dependency in the individual are biological, psychological and social. The biological factors are related to the each individual's organism, whereas the psychological ones refer to each individual's personality, fears, anxieties and self-doubt facing many situations in daily life. The social factors are related to the family group and culture in which the individual is inserted.

When comparing neurocognitive damage in cocaine/crack dependents to normal individuals, we observed alterations in attention tests, verbal fluency, visual memory, verbal memory, learning capacity and executive functions. This fact indicates that cocaine abuse is related to significant neuropsychological deficits, similar to those that occur in cognitive disorders, possibly linked to problems in prefrontal and temporal areas of the brain (CUNHA et al, 2004). There is also strong association between attention deficit, hyperactivity disorder (ADHD) and psychoactive substance use disorder (PSUD) in clinical and community studies. A projection shows that approximately 30% of the citizens with PSUD present comorbidity with ADHD, this rate is significantly higher than the one seen in the general population (SZOBOT and ROMAN, 2007).

In this diagnostic, it is also considered the neuropsychological evaluation, which consists on the examination of the individual's cognitive functions, as orientation, memory, language, attention, reasoning, through standardized procedures and tests (SCHLINDWEIN-ZANINI, 2010). Neuropsychological exam indications include evaluation and follow up of patients with dementia (Alzheimer's, Vascular); mnemic deficit associated with age; evaluation of cognitive deficit after stroke, traumatic brain injury (TBI); meningoencephalomyelitis; intoxication; cognitive deficit associated with the abusive consumption of alcohol (Wernicke-Korsakoff Syndrome), related to the use of drugs (e.g., cocaine), in epilepsy cases. As well as mental deficiency; attention deficit in sustained attention deficit disorder; in schizophrenia; in the evaluation of enduring pattern of learning disability; and in differential diagnosis (for example, depression versus dementia) (SCHLINDWEIN-ZANINI, 2009).

Theorized by Murawieff in 1897, the Wernicke–Korsakoff syndrome has the same cause that is responsible for Wernicke's encephalopathy and Korsakoff's syndrome (ADAMS and VICTOR, 1989). It consists of an illness usually present in chronic alcoholics, affecting the Central and Peripheral Nervous System, as well as some areas responsible for the memory (DALGALARRONDO, 2008). One of the symptoms is related to failure on the supplementation of vitamin B12 found in Wernicke's encephalopathy - Korsakoff cases (Fragoso et al., 2012). For chronic alcoholics, where thiamine levels are low, some symptoms are frequent: mental confusion, mild anterograde and retrograde amnesia, ataxia (loss of coordination and balance of the voluntary muscle movement), ophthalmoplegia (paralysis or weakness of one or more extra ocular muscles) (GRANDSON et al., 2005), added to injuries in brain structures as hypothalamus and hippocampus (OLIVEIRA, 2005). Wernicke's encephalopathy refers to thiamine's decrease as being one of the most typical background of chronic alcohol addiction. Affected areas of the brain, observed in vivo (MRI), comprehend mammillary bodies, periaqueductal and periventricular gray substance, colliculus and thalamus. The last-mentioned are generally swollen, especially in the acute phase, showing signs of the syndrome, as global amnesia, disability to perpetuate new information (sporadic) in the long-term and/or recognition memory (SULLIVAN and PFEFFERBAUM , 2009).

A cognitive rehabilitation/stimulation can be better planned according to the results of neuropsychological evaluation. This concentrates on the deficient cognitive functions and aims at improving the patient's condition, both in the neuropsychology dimension and the quality of life (SCHLINDWEIN-ZANINI, 2010). In this regard, Cunha et al. (2004) comment that the understanding of specific neuropsychological damage can be useful in planning prevention programs and a more effective treatment for cocaine/crack abuse, contributing to the development of treatment programs that are best suited for cocaine/crack dependents, since these involve cognitive-behavioral approaches (GOTTSCHALK et al, 2001).

The treatment includes Cognitive Behavioral Psychotherapy (focusing, also, on motivational intervention, recovery of social skills and abstinence), psychotropic substances and vitamins supplement (when necessary), whether in inpatient, outpatient care and therapeutic communities. The treatment for substance users, in general, is long and multidisciplinary. We

observed clinical, family, legal and social aspects. The maintenance of the patient's abstinence is vital and a social network of well-organized support is necessary.

The chemical dependency is a serious public health problem, requiring special attention. Therefore, the health area has a lot to do with regard to the use of drugs and the promotion of health (GELBCKE and PADILHA, 2004). Unfortunately, according to the Ministry of Health (Ministério da Saúde, 2002) the relapse rates of drug users are high, showing that the current treatments are far from the desirable efficiency.

METHODOLOGY

Descriptive research. Study type concerning the analysis of clinical case.

RESULTS AND DISCUSSION

A female, 42 years-old patient, with incomplete school degree, housewife, divorced, hospitalized, referred with condition of mental confusion, decreased levels of consciousness, motor neuron disease and previous history of alcoholism. The magnetic resonance imaging-MRI carried through in the occasion mentioned “findings compatible with pontine and extrapontine myelinolysis, small to moderate brain volume reduction" (SIC). The patient reported having history of use and abuse of alcohol, cocaine and crack. She also presented symptoms of anxiety, depression, sleep alterations, concentration and memory difficulties. A progressive improvement was observed using thiamin. No relative was available to accompany the patient on the occasion. The gap between user and family is often a reflection of the psychological impact on the relations. That gap results of the chemical/psychological dependency and its cognitive and social consequences.

Concerning the Pontine Myelinolysis, it is worth remembering that it consists of a demyelinating disease of the brain that reaches especially the pons, also being able to attack extrapontine regions. Ashrafian and Davey (2001) explain that one of the main stimulations for the occurrence of pontine myelinolysis is the quick sodium correction in patients with hyponatremia. On the other hand, conditions as chronic alcoholism and malnutrition are strong independent indicators of the illness' occurrence, whose clinical presentation includes aphasia, trembling, incontinence, seizure, pupillary and oculomotor abnormalities, Locked-in syndrome, steroid spinal reflex and fatigue

In the Neuropsychological Evaluation (that had used interviews and neuropsychological instruments as Wechsler's Adult Intelligence Scale - WAIS), relevant damages in spatial or temporal orientation, reasoning, judgment, verbal fluency, planning, mental flexibility and motricity had been brought to attention. Depressive symptoms and anxiety, lowered level of consciousness, mental confusion, deficits in reasoning and judgment skills that are related, especially, to the frontal lobe, were present. It is worth remembering that the education level of the patient, when low, also contributes to the unsatisfactory performance on this exam. The patient presented symptoms mainly found in the Wernicke - Korsakoff Syndrome as alteration in executive functions, impaired thiamine absorption and use of psychoactive substance. This clinical picture can also be seen in the case of diffuse cortical atrophy.

The Psychomotor Assessment, through the Motor Assessment Scale (ROSA NETO, 2002), detected general motor skill and postural balance deficits and lack of motor coordination (known as ataxia).

The lack of motor coordination can be diagnosed, by some specific signs, as dysmetria (which consists in performing a specific movement aiming to hit a target, however, the individual cannot perform exactly the movements required for this). Decomposition is also found in these patients, being perceived when the movement becomes decomposed, performed in successive stages by each joint and not simultaneously, as in complex movements of a healthy individual (MACHADO, 2000). Additionally according to Machado (2000), dysdiadochokinesia is present in these patients, hindering the fast and alternated movements. The rejection that is perceived when the patient seeks to perform a specific movement becomes violent due to lack of motor coordination and its characteristic trembling, increasing at the end of the movement intention, known as intentional tremor. Thus, we can conclude that, initially, postural ataxia and gait usually occurs in these patients. In more advanced stages of the disease, this cerebellar syndrome can make impossible the deambulation, the maintenance of balance and posture, the control of muscle tone, the control of the voluntary movements and the motor learning, which also harm the quality of life (ZUBARAN et al, 1996).

In the occasion, the patient received full treatment by multidisciplinary team, presenting improvement of the clinical picture and reconcilement with the family

CONCLUSIONS

-Substance dependence relates to biological, social and psychological factors and consists, basically, in the presence of behavioral, physiological and cognitive changes, which negative impact on the user's health and family does not prevent him or her from continuing the use. This generates repeated self-administration and consequent tolerance, withdrawal and compulsive behavior for drug consumption.

-Wernicke-Korsakoff Syndrome affects the Central and peripheral Nervous System, presenting symptoms as damage in memory and learning abilities, mental confusion, ophthalmoplegia, ataxia and mental disorders, in addition to injuries in brain structures, more frequently found in chronic alcoholics (especially those presenting low levels of thiamine).

-Deficits in general motor abilities and postural balance are associated with ataxia, dysmetria, dysdiadochokinesia, damaging the patient's gait and quality of life.

-The treatment of chemical dependency and neuropsychological rehabilitation (either in ambulatorial level, hospitalization or in therapeutic communities) includes, especially, psychotherapy, use of psychotropic drugs, cognitive stimulation, nutritional guidance and vitamins replacement (when necessary), recreational activities and physical activity. It also requires a multidisciplinary approach (medical, psychologist/Neuropsychologist, nurse, physiotherapist, occupational therapist, social worker), in addition to the guidance and support the of patient's family.

REFERENCES

ADAMS, R.D.; VICTOR, M. In: Principles of neurology. New York, McGraw-Hill, 1989. p.821-4

ALMEIDA FILHO, N.; MARI, J.J.; COUTINHO, E. et al. - Estudo Multicêntrico de Morbidade Psiquiátrica em Áreas Urbanas Brasileiras (Brasília, São Paulo, Porto Alegre). Rev ABP-APAL 14: 93-104, 1992.

ASHRAFIAN H.; DAVEY P. A review of the causes of central pontine myelinosis: yet another apoptotic illness ? Eur J Neurol 2001;8:103-109.

ASSOCIAÇÃO PSIQUIÁTRICA AMERICANA (2000). Manual diagnóstico e estatístico de transtornos mentais — DSM-IV (4ª ed.) (D. Batista, Trad.). Porto Alegre: Artes Médicas. 2000.

BLEFARI, A. L. A Família e a Drogadição. [monografia de especialização] São Paulo (SP): Faculdade de

Medicina/USP; 2002.

CUNHA, P. J. et al . Alterações neuropsicológicas em dependentes de cocaína/crack internados: dados preliminares. Rev. Bras. Psiquiatr., São Paulo, v.26, n.2, jun. 2004.

DALGALARRONDO, P. Psicopatologia e semiologia dos transtornos mentais. 2ed. Porto Alegre: ARTMED, 2008.

FRAGOSO, Y.D.; ALVES-LEON, S.V.; ANACLETO, A.C.; BROOKS, J.B.B.; GAMA, P.D.; GOMES, S.; GONÇALVES, M.V.M.; LIN, K.; LOPES, J.; KAIMEN-MACIEL, D.R.; MALFETANO, F.H.; MARTINS, G.L.; OLIVEIRA, F.T.M.; OLIVEIRA, L.D.; SCHLINDWEIN-ZANINI, R. Neurological complications following bariatric surgery. Arquivos de Neuro-Psiquiatria, 70(9), 700-703. 2013. Acesso em 20/10/2013. Disponível em <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0004-282X2012000900010&lng=en&tlng=en>.

MACHADO, A. B. M. Neuroanatomia Funcional. 2° ed. São Paulo: Editora Atheneu, 2000.

NETO, J. G.; TAMELINI, M. G.; FORLENZA, O. V. Diagnóstico Diferencial das Demências. Revista de Psiquiatria Clínica. v. 32, n. 3, p.119-130, 2005.

GOTTSCHALK C, BEAUVAIS J, HART R, KOSTEN T. Cognitive Function and Cerebral Perfusion During Cocaine Abstinence. Am J Psychiatry. 2001; 158(4):540-5.

ORGANIZAÇÃO MUNDIAL DA SAÚDE. Transtornos devido ao uso de substâncias. Em Organização Pan-Americana da Saúde & Organização Mundial da Saúde (Orgs.). Relatório sobre a saúde no mundo. Saúde Mental: nova concepção, nova esperança (pp. 58-61). Brasília: Gráfica Brasil. 2011.

GELBCKE, F. L.; PADILHA, M. I. C. S. O fenômeno das drogas no contexto da promoção da saúde. Texto e Contexto de Enfermagem, 13, 272-279. 2004.

ROMANÍ, O. Las drogas – sueños e razones, Barcelona, Ariel. 1999.

ROSA NETO F. Manual de avaliação motora. Porto Alegre: Artmed, 2002.

SCHLINDWEIN–ZANINI, R. Avaliação Neuropsicológica de adultos. In: Malloy-Diniz, L.; Fuentes, D.; Mattos, P.; Abreu, N. Avaliação Neuropsicológica. Porto Alegre: Artmed, 2010. p.234-246.

SCHLINDWEIN-ZANINI, R. Aspectos psicológicos e neuropsicológicos do idoso. In: ROSA NETO, Francisco (Org.). Manual de atividade motora para terceira idade. Porto Alegre: Artmed, 2009. p. 62-73.

SCHLINDWEIN-ZANINI, R. Neuropsicologia e Saúde Mental. Cad. Bras. Saúde Mental, Florianópolis, v. 1, n. 1, jan-abr. 2009. CD-ROM.

SCHLINDWEIN-ZANINI R. Demência no idoso: aspectos neuropsicológicos. Rev Neurocienc 2010; 18(2):220-226. Disponível em < http://revistaneurociencias.com.br/edicoes> Acesso em 03/10/2013.

SCHLINDWEIN-ZANINI, R.; SCHLEMPER JUNIOR, B. Neuroethics and Neuroscience. Contextos Clínicos, 6(1):58-61, janeiro-junho. 2013. Disponível em: <http://www.revistas.unisinos.br/index.php/contextosclinicos> Acesso em 03/10/2013.

SCHLINDWEIN-ZANINI, R. et al. Avaliação neuropsicológica e deficiências físicas: revisão de instrumentos viáveis no Brasil. Contextos Clínicos, 6(1):33-40, janeiro-junho 2013. Disponível em:
<http://www.revistas.unisinos.br/index.php/contextosclinicos> Acesso em 03/10/2013.

Sullivan, E.V.; Pfefferbaum, A. Neuroimaging of the Wernicke–Korsakoff Syndrome. Alcohol & Alcoholism. vol. 44, No. 2, pp. 155–165, 2009

SZOBOT, C. M.; ROMANO, M. Co-ocorrência entre transtorno de déficit de atenção/hiperatividade e uso de substâncias psicoativas. J Bras psiquiatr., Rio de Janeiro, v. 56, supl. 1, 2007 . Disponível em <http://www.scielo.br Acesso em 02 out. 2013.

WECHSLER, D. WAIS-III: Escala de inteligência Wechsler para adultos: Adaptação e padronização de uma amostra brasileira. São Paulo: Casa do Psicólogo; 2004.

VIETA, E.; COLOM, F.; CORBELLA, B. et al. Clinical Correlates of Psychiatric Comorbidity in Bipolar I Patients. Bipolar Disord 3: 253-258, 2001.

UNODC - United Nations Office on Drugs and Crime. Global illicit drug trends 2003 [online]. New York: UNODC; 2003. Disponível em <http://www.unodc.org>.

ZUBARAN, C. et al. Aspectos clínicos e neuropatológicos da síndrome de Wernicke-Korsakoff. Rev. Saúde Pública. v.30 n.6 São Paulo dez. 1996.

Rua Lauro Linhares, 2123, torre 1, sala 612.
CEP. 88036-002.
Florianópolis / Santa Catarina. Brasil.
E-mail: rachelsz@floripa.com.br

WERNICKE–KORSAKOFF SYNDROME, SUBSTANCE USE AND ABUSE: NEUROPSYCHOLOGICAL AND PSYCHOMOTOR EFFECTS.

ABSTRACT

The use and abuse of chemical substances can change different cognitive, emotional and motor functions in human beings (as perception, behavior, motor skills, judgment, attention, and memory), reflecting in a social, economic, biological and psychological way in the drug user's life and his or her family. Chemical dependency is a public health problem and needs health promotion policies. OBJECTIVE: To investigate neuropsychological and psychomotor aspects of an individual diagnosed with Wernicke-Korsakoff syndrome and history of substance use and abuse (alcohol, cocaine and crack).METHODOLOGY: Descriptive research, type of study regarding clinical case on Syndrome of Wernicke-Korsakoff, substance use and abuse. CONCLUSION: Wernicke-Korsakoff Syndrome affects the Central and Peripheral Nervous System, presenting symptoms as damage in memory and learning abilities, mental confusion, ophthalmoplegia, ataxia and mental disorders, in addition to injuries of the brain structures, more frequently found in chronic alcoholics (especially those presenting low levels of thiamine). Need of treatment using multidisciplinary approach directed to the patient and his or her family.

KEYWORDS: Neuropsychology, Psychomotricity, Wernicke-Korsakoff Syndrome.

MALADIE DE WERNICKE KOSAKOFF, USAGE ET ABUS DE SUBSTANCES : RÉPERCUSSIONS NEUROPSYCHOLOGIQUES ET PSYCHOMOTRICES

RÉSUMÉ

L'usage et l'abus de substances chimiques peuvent modifier les différentes fonctions cognitives, émotionnelles et motrices de l´être humain (telles que la perception, le comportement, la motricité, le jugement, l'attention et la mémoire) se répercutant sur la vie sociale, économique, biologique et psychologique du consommateur et de sa famille. La dépendance

chimique est un problème de santé publique et a besoin d'actions politiques pour la promotion de la santé. OBJECTIF: rechercher les aspects neuropsychologiques et psychomoteurs de l'individu ayant un diagnostique du syndrome de Wernicke Korsakoff et un historique dans l'usage et l'abus de substances (alcool, cocaine et crack). MÉTHODOLOGIE: Recherche descriptive, telle qu'une étude de cas clinique sur le syndrome de Wernicke – Korsakoff, usage et abus de substances. CONCLUSION : la maladie de Wernicke Korsakoff affecte le système nerveux central et périphérique, en présentant des symptômes tels que les troubles de la mémoire, difficultés d'apprentissage, confusion mentale, ophtalmoplégie, ataxie et troubles mentaux, ainsi que lésions au niveau des structures cérébrales, ce qui est plus fréquent chez les alcooliques chroniques (spécialement avec des niveaux de thiamines bas.) et ce qui nécessite un traitement avec une approche multidisciplinaire orienté vers le patient et sa famille.

MOTS CLÉS: Neuropsychologie, Psychomotricité, Syndrome de Wernicke-Korsakoff.

DEMENCIA DE WERNICKE KORSAKOFF, USO Y ABUSO DE SUSTANCIAS: REPERCUSIONES NEUROPSICOLÓGICAS Y PSICOMOTORAS.

RESUMEN

El uso y abuso de substancias químicas pueden alterar diferentes funciones cognitivas, emocionales y motoras del ser humano (como percepción, comportamiento, motricidad, juzgamiento, atención, memoria), repercutiendo social, económica, biológica y psicológicamente en la vida del usuario y su familia. La dependencia química es un problema de salud pública y necesita de políticas de promoción de salud. OBJETIVO: Investigar aspectos neuropsicológicos y psicomotores de individuo con diagnóstico de Síndrome de Wernicke-Korsakoff e histórico de uso y abuso de substancias (alcohol, cocaína y crack). METODOLOGÍA: Investigación descriptiva, del tipo estudio de caso clínico sobre la Síndrome de Wernicke – Korsakoff, uso y abuso de substancias. CONCLUSIÓN: La Demencia de Wernicke Korsakoff afecta el Sistema Nervioso Central y periférico, presentando síntomas como perjuicio en memoria y aprendizaje, confusión mental, oftalmoplegía, ataxia y disturbios mentales, además de lesiones en estructuras cerebrales, siendo más frecuente en etilistas crónicos (especialmente con niveles de tiamina bajos). Necesitando de tratamiento con abordaje multidisciplinar direccionado al paciente y a su familia.

PALABRAS-CLAVE: Neuropsicología, Psicomotricidad, Síndrome de Wernicke-Korsakoff.

DEMENCIA DE WERNICKE KORSAKOFF, USO E ABUSO DE SUBSTANCIAS: REPERCUSSÕES NEUROPSICOLÓGICAS E PSICOMOTORAS.

RESUMO

O uso e abuso de substâncias químicas podem alterar diferentes funções cognitivas, emocionais e motoras do ser humano (como percepção, comportamento, motricidade, julgamento, atenção, memória), repercutindo social, econômica, biológica e psicologicamente na vida do usuário e sua família. A dependência química é um problema de saúde pública e necessita de políticas de promoção de saúde. OBJETIVO: Investigar aspectos neuropsicológicos e psicomotores de indivíduo com diagnóstico de Síndrome de Wernicke-Korsakoff e histórico de uso e abuso de substancias (álcool, cocaína e crack).METODOLOGIA: Pesquisa descritiva, do tipo estudo de caso clínico sobre a Síndrome de Wernicke – Korsakoff, uso e abuso de substancias. CONCLUSÃO: A Demência de Wernicke Korsakoff afeta o Sistema Nervoso Central e periférico, apresentando sintomas como prejuízo em memória e aprendizagem, confusão mental, oftalmoplegia, ataxia e distúrbios mentais, além de lesões em estruturas cerebrais, sendo mais freqüente em etilistas crônicos (especialmente com níveis de tiamina baixos), necessitando de tratamento com abordagem multidisciplinar direcionado ao paciente e sua família.

PALAVRAS-CHAVE: Neuropsicologia, Psicomotricidade, Síndrome de Wernicke-Korsakoff.