

Depression, Cognitive Distortions and Brain Asymmetry

Depressão, Distorções Cognitivas e Assimetria Cerebral

Passos, M.P., Oliveira, J.R.M., Sougey E.B.*

ABSTRACT

Cognitive distortions (CDs) are present in various mood disorders as stereotyped patterns of depressive thought. CDs might be inferred through the Beck Depressive Inventory (BDI) and are the basis of ruminative aspects of negative thinking and suicidal ideation. Dunn et al (2002) verified that negative cognitions cluster correlated with lower absolute metabolism bilaterally in frontal poles, and in right dorsolateral frontal cortex and supracallosal cingulate. Pujol et al (2000) reported demyelinating injuries in the left arcuate fasciculus region associated with the affective symptoms and somatic complaints of the BDI. However, CDs were not consistently associated with the lesion measurement, rising the possibility of a specific lateralization for this BDI item, maybe involving structures of the right hemisphere, perhaps even the right arcuate fasciculus. Considering the studies reported above, there is a possibility of associating CDs with a neuronal network involving the frontal lobes, right dorsolateral frontal cortex, right supracallosal cingulated and right white matter tracts.

KEY WORDS: Beck Depressive inventory, BDI, Cognitive Distortions, Brain Asymmetry, Depression.

RESUMO

As distorções cognitivas (DC) estão presentes em vários transtornos do humor como padrões estereotipados de pensamento depressivo. As DC podem ser inferidas através do Inventário Beck de Depressão (IBD) e são a base do caráter ruminativo do pensamento negativista e da ideação suicida. Dunn et al (2002) verificou que cognições negativas estavam relacionadas com diminuição absoluta bilateral do metabolismo no lobo frontal, córtex dorsolateral frontal direito e a região do cíngulo acima do corpo caloso. Pujol et al (2000) relataram lesões desmielinizantes no fascículo arqueado esquerdo, associados aos componentes de queixa somática e afetivas do IBD. No entanto, as DCs não foram consistentemente associadas com esta lesão, sugerindo a possibilidade de haver uma região especializada também para este agrupamento de sintomas, eventualmente envolvendo estruturas do hemisfério direito, talvez o próprio fascículo arqueado direito. Considerando os estudos relatados acima, pode-se aventar que há uma associação entre as DCs e uma via neural envolvendo os lobos frontais, o córtex frontal dorso-lateral direito, o giro supra-caloso cingulado e tratos da substância branca do hemisfério direito.

PALAVRAS-CHAVE: Inventário Beck de Depressão (IBD), distorções cognitivas (DC), Assimetria cerebral, Depressão.

Due to the subjectivity of the mood symptoms, various clinical rating scales were developed trying to help the estimation of quantitative and qualitative aspects of depressive disorders. The Beck Depressive Inventory (BDI) is very popular nowadays because it evaluates different morbid aspects of Depression, including cognitive symptoms, somatic complaints and psychomotor impairment (Beck et al, 1961).

Cognitive distortions (CDs) are present in various mood disorders as stereotyped patterns of depressive thought and primarily labeled as: Overgeneralization, Mental filters, Jumping to conclusions and Emotional reasoning (Beck et al, 1961). CDs might be observed through the BDI and are the basis of ruminative aspects of negative thinking and suicidal ideation.

Few studies have tried to associate the BDI symptom components with

functional and anatomical changes in specific brain regions, but Pujol et al (2000) reported demyelinating injuries in the left arcuate fasciculus region associated with the affective symptoms and somatic complaints of the BDI. However, CDs were not consistently associated with the lesion measurement, rising the possibility of a specific lateralization for this BDI item, maybe involving structures of the right hemisphere, perhaps even the right arcuate fasciculus.

Studying patients with unipolar depression, Dunn et al (2002) verified that negative cognitions cluster correlated with lower absolute metabolism bilaterally in frontal poles, and in right dorsolateral frontal cortex and supracallosal cingulate. Considering the studies reported above, there is a possibility of associating CDs with a neuronal network involving the frontal lobes, right dorsolateral frontal cortex, right arcuate fasciculus and right white matter tracts.

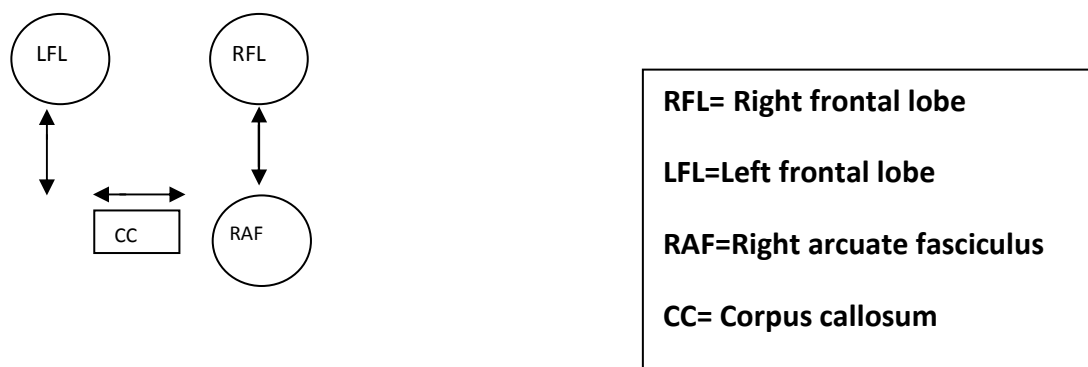


Figura 1. An illustrative model of a neuronal pathway involved in cognitive distortions.

This hypothesis rises the possibility of identifying cerebral regions related to CDs and the proposed network aims to start exploring the phenomenon of brain lateralization of the BDI symptom clusters, creating a neural based platform to better contextualize this phenomenon.

REFERENCES

Beck AT, Ward CH, Mendelson M, Mock JE, Erbaugh JK. An inventory for measuring depression, Archives of General Psychiatry 1961; 4: 561-571.

Dunn RT, Kimbrell TA, Ketter TA, et al. Principal components of the Beck depression inventory and regional cerebral metabolism in Unipolar and bipolar depression. Biological Psychiatry 2002; 51: 387-399.

Pujol J, Bello J, Deus J, Cardoner N, Martí-Vilalta JL, Capdevila A. Beck depression inventory factors related to demyelinating lesions of the left arcuate fasciculus region. Psychiatry Research: Neuroimaging Section 2000; 99: 151-159.