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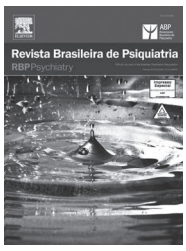

Letter to the Editors

Increased serum levels of C3 and C4 in patients with schizophrenia compared to eutymic patients with bipolar disorder and healthy

O aumento dos níveis séricos de C3 e C4 em pacientes com esquizofrenia em comparação com pacientes com transtorno bipolar eutímico e saudáveis

Dear Editor,

Different lines of research have examined the role of neurotrophins and oxidative stress on Bipolar Disorder (BD) and Schizophrenia (SZ).[1-3] Nevertheless, the most extensively study so far seems to be the role of inflammation.[4] Most of the studies of inflammation in psychiatric disorders have focused on inflammatory cytokines. The involvement of other components of the inflammatory response remains fairly obscure. The examination of different components of the inflammatory mechanism involved in these disorders might provide new possibilities of treatment. The serum complement system is one of the most important components of humoral immunity; it consists of separate plasma proteins that react in a specific sequence with antigen-antibody complexes. The result of this sequence of reactions are increased vascular permeability, attraction of polymorphonuclear leukocites, enhancement of phagocytosis, and alterations in cell membrane that lead to lysis and cell death.[5] The CS is an important part of the innate immune system, with the Complement 3 (C3) playing a central role in all pathways. Therefore, this study was designed to examine levels of two different components of the complement system: C3 and C4. Both components in euthymic patients with BD, and chronic stabilized patients with SZ in comparison to healthy controls. Methods have been described

Table 1 Characteristics of healthy controls and patients with Bipolar Disorder (BD) and, Schizophrenia (SZ)

	Control group (n = 80)	BD euthymic (n = 20)	SZ (n = 53)	p-value
Gender (M/F) [a]	32/48	8/12	40/13	< 0.0001*
Age, years [a]	40.7 (12.5)	46.6 (12.6)	39.9 (9.4)	0.115**
Years of illness [b]	-	12.0(16.3)	18.0(16.7)	0.026***
YMRS score [b]	-	1.5 (6.5)	-	-
HAMD score [b]	-	4.0 (4.5)	-	-
BPRS score [b]	-	-	12.0 (11.0)	-
CGI score [b]	-	-	2.0 (1.0)	-
Antipsychotic daily dose, In mg of chlorpromazine equivalents a	-	-	501.9 (218.1)	-
C3(mg/dL)	162.6(50.1)	163.4(32.8)	190.3(43.6)	0.003**
C4 (mg/dL)	38.4 (24.9)	33.1 (10.6)	40.3 (16.1)	0.352**

YMRS: Young Mania Rating Scale; HAMD: Hamilton Depression Rating Scale; BPRS: Brief Psychiatry Rating Scale; CGI: clinical global impression. *Chi-Square; **One-way ANOVA; *** Mann-Whitney; [a] Shown as mean ± standard-deviation control/euthymic vs. SZ, p < 0.011.

elsewhere.[4] Table 1 shows sample's characteristics. C3 was significantly higher in patients with SZ when compared to both controls ($p < 0.011$) or euthymic BD patients. C3 levels were not different between controls and euthymic patients with BD ($p = 0.998$). There was no significant difference between serum levels of C4 among the three groups ($p = 0.164$). There was no correlation of antipsychotic dose and C3 ($p = 0.613$) or C4 ($p = 0.668$). Considering that our comparison involved patients in non-acute phases of illness (euthymic BD vs. chronic SZ), it provides additional evidence of a chronic immune activation and inflammatory syndrome in SZ, in accordance with previous studies.[4] Nevertheless, these findings could also be explained by the longer duration of illness in the SZ group.[2] We believe that a comparative assessment of the pathophysiological mechanisms in BD and SZ may provide interesting insights into the different roles played by such mechanisms in each disorder. Past comparisons have suggested different profiles of oxidative stress,[3] neurotrophins,[1] and inflammatory cytokines[4] in SZ and BD. While different lines of evidence suggest that, in BD, there is an episode-related deterioration pattern, and in SZ, this deterioration seems to be of a chronic nature, starting at the onset of the illness. Our results suggest activation of the CS in SZ, indicated by the increased levels of C3. This activation probably occurs through the alternative pathway, since there was no increase in C4 levels.

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