

CD19 Positive and CD4 Negative Lymphocytes in Patients Suffering from Schizophrenia



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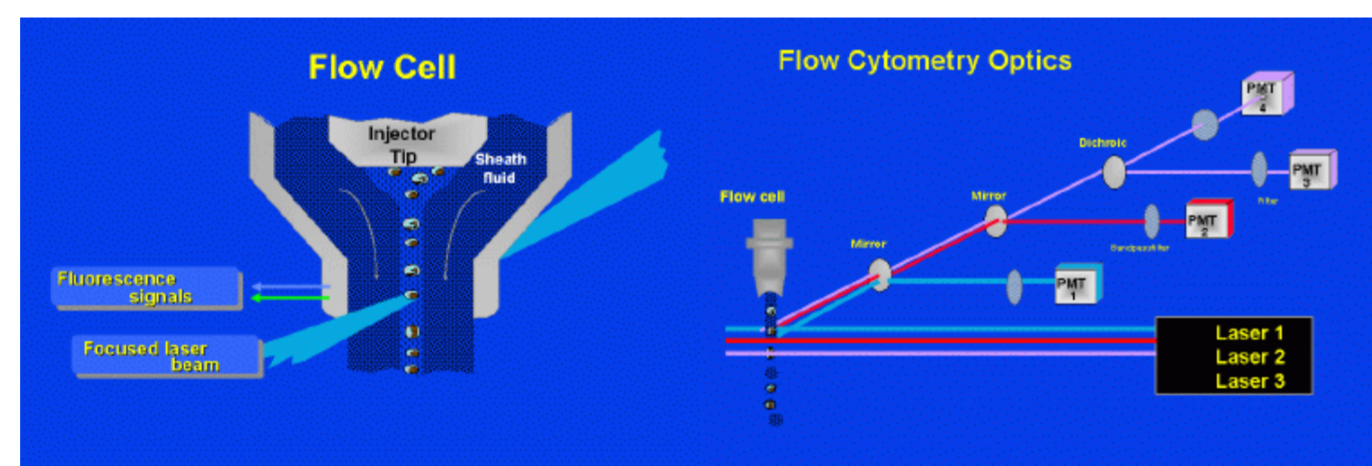
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1. Introduction

IN the multifactorial etiology of schizophrenia immunological dysfunction may play a role in the pathogenesis of schizophrenia. Recent immunological studies point out a dysbalance between the type-1 and the type-2 immune response in schizophrenia with an overactivation of the type-2 response [1]. In this study we investigated monocytes and lymphocytes of schizophrenic patients and healthy controls with FACS analysis to confirm dysbalances in the type-1 and type-2 immune response. We measured the extracellular concentration of CD 19 on lymphocytes of unmedicated schizophrenic patients and healthy controls before and after stimulation with LPS.

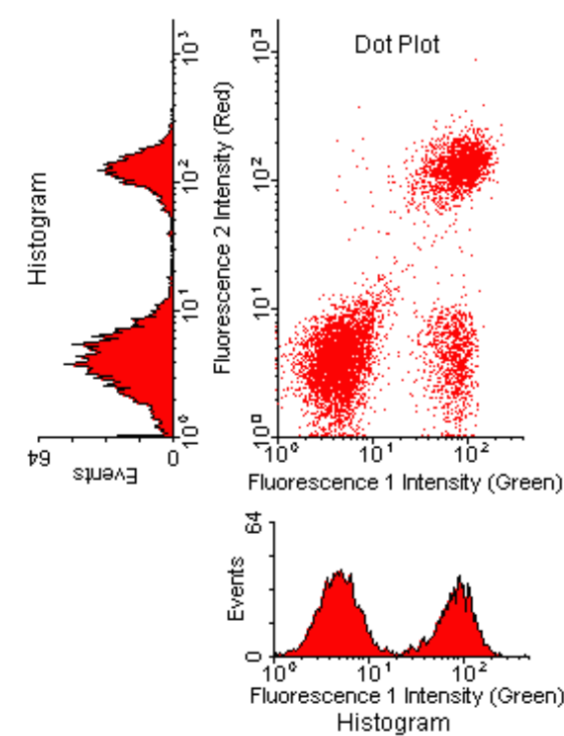
2. Method

AFTER informed agreement we analysed lymphocyte and monocyte subpopulations by flow cytometry in 31 schizophrenic patients and 25 matched healthy controls. The expression of CD 19 on CD 4 negative lymphocytes was measured by flow cytometry(FACS).



Principle of FACS-Analysis

Extracellular CD 19 staining was done before and after stimulation with lipopolysaccharide (LPS) in a whole-blood assay. After lysis of erythrocytes, leukocytes were fixed before staining of CD 19 extracellularly by flow cytometry.

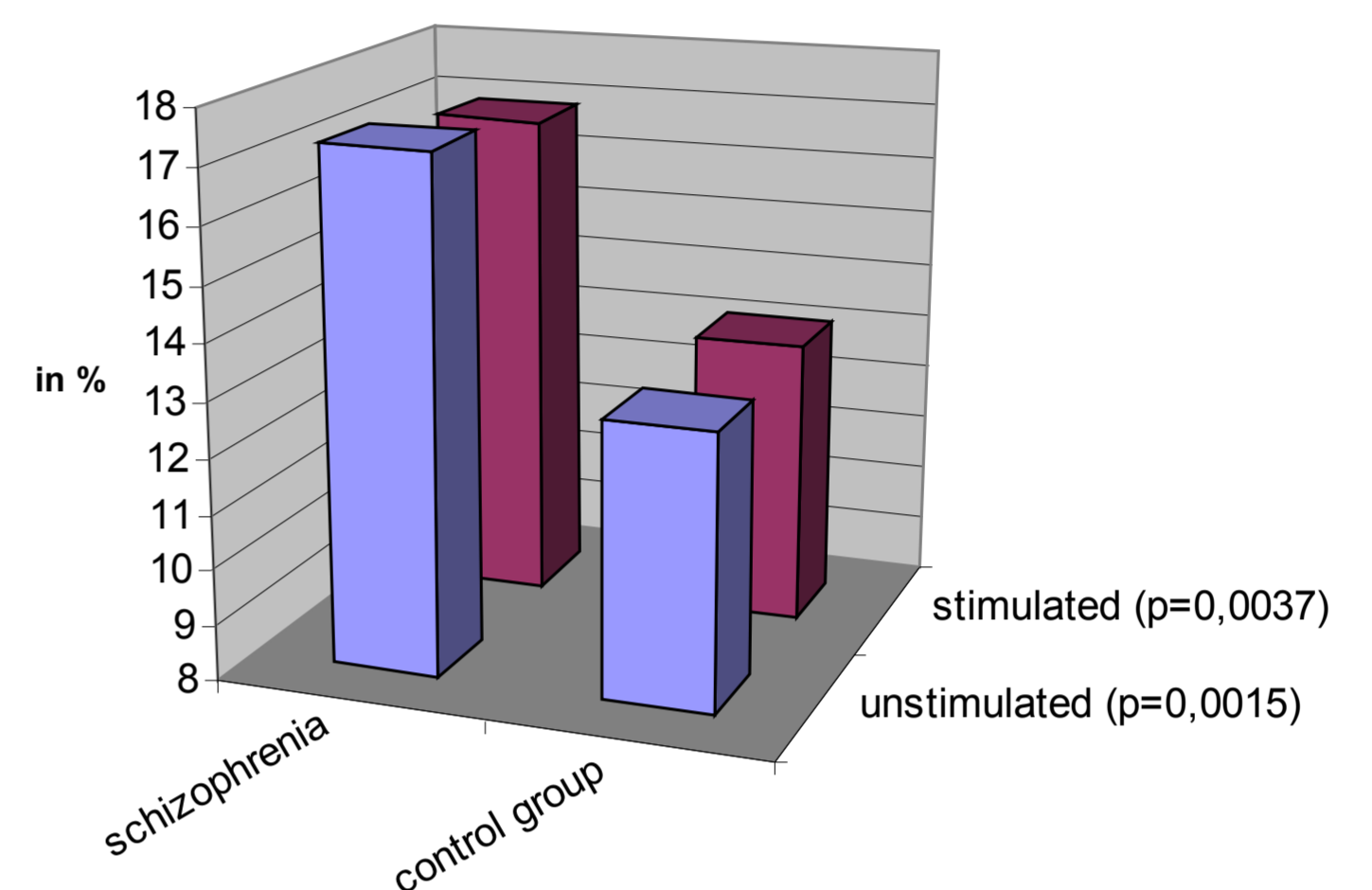


FACS-Analysis (example plot)

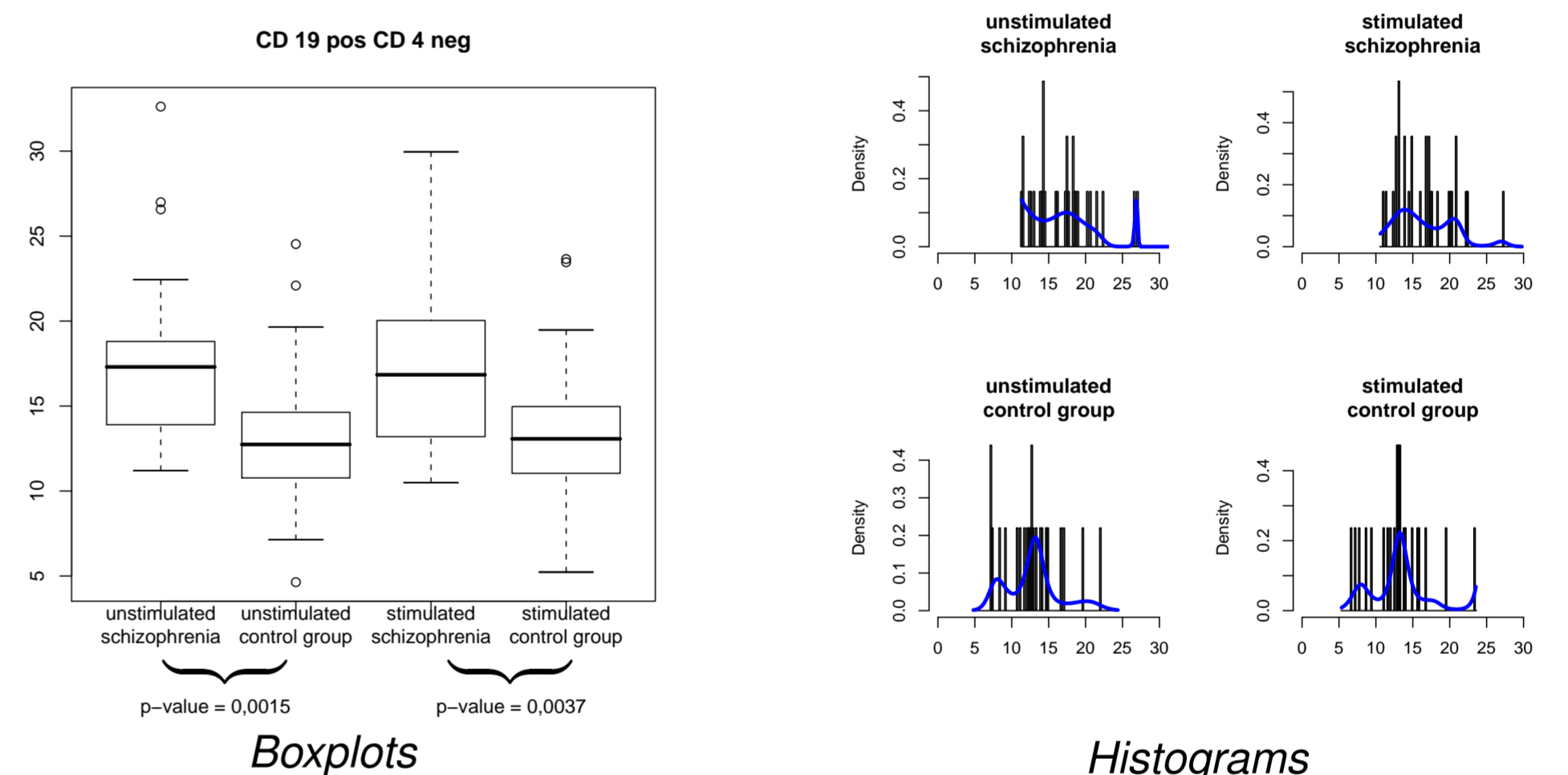
3. Results

THE levels of CD 19 positive and CD 4 negative lymphocytes are significantly higher in patients suffering from Schizophrenia than in the control group. Before stimulation with LPS the mean value of CD 19 positive and CD 4 negative lymphocytes is 17,25 % in the schizophrenia group and 12,93 % in the control group (p-value: 0,0015). After stimulation with LPS the mean value of CD 19 positive CD 4 negative lymphocytes is 16,88 % in the schizophrenia group and 12,93 % in the control group (p-value: 0,0037).

CD 19 pos CD 4 neg B Lymphocytes



Comparison of Means



Boxplots

Histograms

4. Discussion

CD 19 is a marker for antibody producing B-lymphocytes. The antibody producing CD 19 positive B-lymphocytes represent the humoral specific immune response. In our study the number of CD 19 positive B-lymphocytes is increased in patients suffering from schizophrenia in comparison to a healthy control group, before and after stimulation with LPS. These results indicate an overactivation of the humoral specific immune response in the pathogenesis of schizophrenia. The findings of our study seem to confirm the Th2-shift hypothesis of schizophrenia with an overactivation of the type-2 response.

References

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