

Change of dopamine receptor mRNA expression in lymphocyte of schizophrenic patients

ABSTRACT

These results reveal that the molecular biologically-determined dopamine receptors of peripheral lymphocytes are reactive, and that increased expression of dopamine receptor in peripheral lymphocyte has possible clinical significance for subgrouping of schizophrenia.

INTRODUCTION

Background Schizophrenia, commonly developed in adolescents and young adults, is one of the most common mental disorders, but the pathophysiology and etiology of schizophrenia is still obscure. Numerous studies on dopamine and schizophrenia have suggested that the change in the dopamine system is related to schizophrenia, but there is little direct evidence for the "dopamine hypothesis in schizophrenia". Recent progress in molecular biology and imaging techniques has enabled new insight for schizophrenia research, but these methods are still limited by their availability and often reveal inconsistent results. The "dopamine hypothesis" is largely based on pharmacological manipulation of the dopamine system, either by mimicking or reducing the symptoms of schizophrenia. However changes in the dopamine system are influenced not only by dopamine itself, but also by dopamine receptors. Therefore, to elucidate the exact changes in the dopamine system researches about the relationship between dopamine and dopamine receptors are needed. In the early 1980s, Le Fur reported the existence of high affinity binding sites for [3H]spiroperidol in lymphocyte of peripheral blood, but there has been long debate as to whether these sites are true dopamine receptors or nonspecific binding sites. Recent progress in molecular biology reveals the existence of mRNA of D3, D4, D5 dopamine receptors in peripheral lymphocytes, thereby suggesting that the binding sites for [3H]spiroperidol in peripheral lymphocytes may be true dopamine receptors. However, the clinical significance of these findings, and whether or not these receptors reflect central dopamine receptors remains uncertain. The purposes of this study were to examine if the mRNA of peripheral dopamine receptor is statically or dynamically changed in schizophrenia, and whether or not these receptors have some value as a potential peripheral marker reflecting central one in schizophrenia.

CONCLUSION

This study reveals that the molecular biologically-determined dopamine receptors of peripheral lymphocytes are reactive after taking antipsychotics, and that increased expression of dopamine receptor in peripheral lymphocyte has possible clinical significance for subgrouping of schizophrenia.