

Osteoporosis in Male Schizophrenic Patients

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Background: This study was designed to examine the effect of conventional and atypical antipsychotic medications, serum prolactin and testosterone, body mass index (BMI) and severity of illness on bone mineral density BMD in male schizophrenic patients.

Subjects & Methods: Sixty male schizophrenic patients were chosen; thirty of them were on conventional antipsychotics (group I) and the other thirty patients were on atypical antipsychotics (group II). Thirty healthy control subjects were also included. BMD was measured by the Dual Energy X ray Absorbiometry (DEXA) in all subjects. Also, serum prolactin and serum testosterone body mass index (BMI) were measured in all subjects. Severity of illness was assessed by PANSS in patients group.

Results: BMD measures were found to be significantly lower in (group I) compared with (group II) and with control subjects. Group I showed significantly higher serum prolactin but significantly lower testosterone values compared to (group II) and control subjects. In patients group, BMD measures showed significantly negative correlation with serum prolactin values but positive one with serum testosterone value. These measures showed no significant correlation with severity of illness or BMI.

Conclusion: Male schizophrenic patients are at high risk of osteoporosis. Conventional not atypical antipsychotic medications, beside its known side effects, are considered a risk factor in the causation of osteoporosis in schizophrenia through its prolactin raising properties with its consequent hypogonadism.

Keywords: Osteoporosis, Prolactin, Antipsychotics, Schizophrenia.

Abbreviations:

DEXA: Dual Energy X ray Absorbiometry
BMD: Bone Mineral Density

BMI: Body Mass Index

PANSS: Positive and Negative Symptom Scale

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INTRODUCTION

The general lifestyle and physical health of patients with schizophrenia are relatively rarely studied and it has been known that people with schizophrenia have a higher risk of medical illness than does the general population (Joukamaa, et al. 2001).

Chronic psychiatric illness is associated with high rates of osteoporosis (Abraham, et al. 1996) but the etiology of this bone loss remains speculative. A growing number of recent reports have suggested that there is an association between decreased bone mineral density and schizophrenia (Halbreich, et al. 1995 and Abraham, et al. 2003), particularly in patients treated with psychotropic medication (O'Keane and Meaney, 2005). However, these studies have not examined whether this is clinically significant, leading to an increased risk of fractures. Taking into consideration that the prevalence of functional psychoses is 4 per 1000 (Jenkins, et al. 1997) with approximately half of that figure relating to schizophrenia, The identification of schizophrenia as a risk factor for osteoporosis would therefore have important public health implications.

Bone, both of cortical and trabecular structure, undergoes continuous changes throughout life, called

bone remodeling (Parfitt, 1979). This regulatory process of remodeling can be influenced in many ways, and one of the pathological consequences is osteoporosis, defined as an absolute decrease in total bone mass. Osteoporosis is caused either by a greater frequency or duration of activity of osteoclasts, by a decrease in activity or duration of the action of osteoblasts, or a combination of both (Wolinsky Friedland, 1995). Osteoporosis is a disorder that increases the susceptibility to fractures (Johnston, et al. 1989). The most common primary forms of bone loss are postmenopausal osteoporosis and age-related osteoporosis (Gasser and Kapan, 1997). Also, the main cause of secondary osteoporosis is drug-induced. The absence of evidence associating antipsychotic drug use with bone loss may explain why drugs such as glucocorticoids, lithium, anticonvulsants, thyroxine and gonadotropin releasing hormone antagonists are listed by the WHO and the Royal College of Physicians as being associated with the development of osteoporosis but antipsychotic drugs are not (Halbreich, 2007).

Risk factors that might contribute to the development of osteoporosis are alcohol and drug abuse and heavy smoking, often observed in patients with schizophrenia