Lower batokine BMP8b levels in medicated than drug-free schizophrenia patients and the association with metabolic abnormalities

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Background

Antipsychotic drug (APD) treatment has been associated with metabolic abnormalities. Brown adipose tissue (BAT) is the main site of adaptive thermogenesis and secretes various metabolism-improving factors known as *batokines*.

Aims & Objectives

We explored the association of BAT activity with APD treatment and metabolic abnormalities in patients with schizophrenia by measuring the blood levels of bone morphogenetic protein 8b (BMP8b), a batokine secreted by mature BAT.

Methods

BMP8b levels were compared among 50 drug-free, 32 aripiprazole-treated, and 91 clozapine-treated patients with schizophrenia. Regression analysis was used to explore factors, including APD types, that might be associated with BMP8b levels and the potential effect of BMP8b on metabolic syndrome (MS).

Results

APD-treated patients had decreased BMP8b levels relative to drug-free patients. The difference still existed after adjustment for body mass index and Brief Psychiatric Rating Scale scores. Among APD-treated group, clozapine was associated with even lower BMP8b levels than the less obesogenic APD, aripiprazole. Furthermore, higher BMP8b levels were associated with lower risks of MS after adjustment for BMI and APD types.

Discussion & Conclusion

Using drug-free patients as the comparison group to understand the effect of APDs, this is the first study to show APD treatment is associated with reduced BAT activity that is reflected by BMP8b levels, with clozapine associated a more significant reduction than aripiprazole treatment . BMP8b might have a beneficial effect against metabolic abnormalities and this effect is independent of APD treatment. Future studies exploring the causal relationship between APD treatment and BMP8b levels and the underlying mechanisms are warranted.