

Add-on effect of *Brahmi* in the management of schizophrenia

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ABSTRACT

Brahmi (*Bacopa monnieri*), an Ayurvedic herb has primarily been used to enhance cognitive ability, memory and learning skills. We present a case study of schizophrenia in which add-on *Brahmi* extracts 500 mg/day for a period of one month resulted in reduction in psychopathology without any treatment-emergent adverse effect. Although preliminary, our case study suggests therapeutic efficacy of add-on *Brahmi* in schizophrenia, thus opening up a new dimension of its role in alternative medicines.

Key words: *Bacopa monnieri*, *Brahmi*, schizophrenia

INTRODUCTION

Ayurvedic medicine differs from the orthodox western medicine in terms of attributes and applications and may be used to complement, support, or replace it.^[1] *Brahmi* (*Bacopa monnieri*, family: *Scrophulariaceae*) has primarily been used to enhance cognitive ability, memory and learning skills.^[2-4] This Ayurvedic herb has found its use in diverse medical conditions like asthma, bronchitis, dyspepsia, urinary disorders and also a few other diseases.^[4] In psychiatry, *Brahmi* has found its use in the treatment of agitation, anxiety and depression.^[5] While the exact mechanism of action of *Brahmi* is not clear, few pre-clinical studies have reported its cholinergic, anti-oxidant and adaptogenic effect on central nervous system.^[6] We present a case study suggesting the therapeutic efficacy of add-on *Brahmi* in schizophrenia, thus opening up a new dimension of its role in alternative medicines.

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CASE REPORT

Mr. A, a 34-year-old single graduate male, presented with suspiciousness and fearfulness, wandering behavior, muttering to self, unprovoked aggression and disorganized behavior for the past 15 years. Mental status examination revealed delusion of persecution and grandiosity, third-person auditory hallucinations, irritable effect and grade I insight. He was diagnosed as having paranoid schizophrenia according to ICD-10 diagnostic criteria for research. On positive and negative syndrome scale (PANSS), the total score was 108 (positive 59, negative 21 and general psychopathology 28) and on brief psychiatric rating scale (BPRS) the total score was 48. He was started on olanzapine tablets 10 mg/day, which was increased gradually up to 20 mg/day over a period of two weeks. Although there was initial improvement in psychopathology, it did not sustain after three-week trial on the same dose of olanzapine. His rating on PANSS was 92 (positive 43, negative 21 and general psychopathology 28) and on BPRS was 38. Subsequently, after obtaining written informed consent, after five weeks on olanzapine tablets, he was given an add-on trial of Ayurvedic drug *Brahmi* (each tablet containing 250 mg of *Brahmi* extract, a pure herb extract by Himalaya Herbal Healthcare) at a dose of two tablets, a day for a period of one month, as prescribed by a qualified Ayurvedic physician on the basis of research reports and not on Ayurvedic parameters. Weekly rating was done for four weeks on PANSS, BPRS and *Udvalg for Kliniske Undersogelser* (UKU) side effect rating scale. The dose of olanzapine was kept constant, and no other drugs were added during this period. At the end of four weeks there was a reduction in psychotic symptoms and

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on PANSS, his score was 67 (positive 29, negative 18 and general psychopathology 20) and BPRS totals score was 27. The changes in psychopathology scores over time are summarized in Figure 1. There were no side effects as assessed on the UKU scale.

DISCUSSION

Despite treatment advances over the past decades, schizophrenia still remains a challenge for the mental health professionals and produces marked functional impairment in a substantial proportion of patients. Researchers have found out novel agents like metabotropic glutamate agonists, alpha nicotinic receptor agonists, muscarinic agonists, etc. with the hope to reduce the magnitude of morbidity across various dimensions of schizophrenia.^[7] The advent of alternative medicines has opened up new avenues for research and treatment in schizophrenia. In our patient, after a five-week trial of olanzapine 20 mg/day, the substantial improvement in positive symptoms on addition of *Brahmi*, an Ayurvedic herb, suggests its potential therapeutic effect in schizophrenia. There was initial improvement in psychopathology with olanzapine 20 mg/day, which reached a plateau after two weeks. The second peak in positive symptom improvement after five weeks could also be due to the delayed effects of olanzapine.

The exact mechanism through which *Brahmi* produces improvement in positive symptoms of schizophrenia is not known. Animal researchers have demonstrated the anti-oxidant properties of *Bacopa* extracts in the brain, which could potentially lead to its positive effect on mental function.^[6] *Bacopa monnieri* has been reported to repair damaged neurons by enhancing kinase activity, restoration of synaptic activity, ultimately enhancing nerve impulse transmission in brain.^[2] The nootropic properties of *Brahmi* have been reported to be possibly mediated by its constituent saponins, bacosides A and B through glutaminergic mechanism.^[4] There is lack of literature to support the therapeutic effect of *Brahmi* in schizophrenia. A small pilot study by Ramu *et al.*^[8] showed improvement in positive and negative symptoms of *chronic unmada* (schizophrenia) in 6 out of 10 patients with *Brahmyadiyoga*, an herbal compound which contains *Brahmi* (*Centella asiatica*), along with other ayurvedic drugs. However, *Brahmyadiyoga* also contains *Sarpagandha* (*Rauwolfia serpentina*), which is a known antipsychotic.^[9,10] The improvement produced by *Brahmi* in positive symptoms and general psychopathology in schizophrenia could possibly be mediated through dopaminergic mechanism and its neurotransmission enhancing properties. Further researches are required to establish the therapeutic effects of *Brahmi* in various dimensions of schizophrenia and

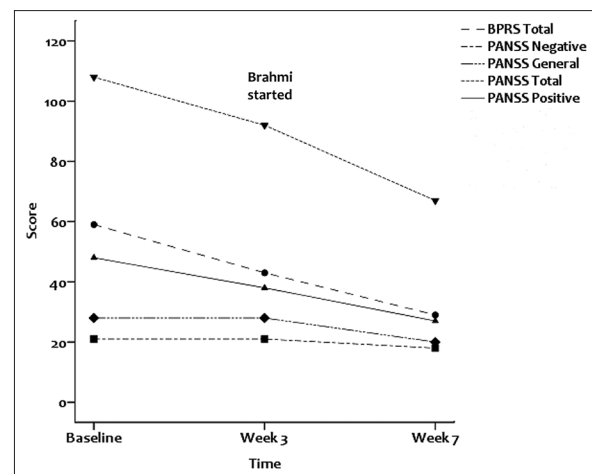


Figure 1: Changes in psychopathology scores over time

also explore the neurophysiological and neurochemical mechanisms behind the same.

In Ayurveda, psychosis (*unmada*) including schizophrenia has been conceptualized as a disorder of mind, caused owing to the imbalance or anomalies of the *tridoshas* (*vata*, *pitta* and *kapha*).^[11-13] Based on the vitiation of the *dosha*, three distinct types of *unmada* as *vataja*, *pittaja* and *kaphaja* have been described in the classics. *Brahmi* is a rejuvenating and nervine (nerve tonic, which quiets nervous excitement akin to sedative property) herb.^[2] The Ayurvedic attributes of *Brahmi* include *tikta*, *kashaaya rasa* (~ sharp, astringent taste), *sheeta virya* (~ cold active principle), *madhur vipaka* (~ effect observed after digestion) and its therapeutic effect (*karma*) has been described as *tridoshanashaka* (suppressing excesses of all the three doshas), especially *vataghna*, *pittaghna* (*vata* and *pitta* abating) attributes.^[11]

In summary, add-on *Brahmi* to olanzapine in a case of paranoid schizophrenia resulted in improvement in psychopathology as evidenced by reduction in PANSS and BPRS scores, without any treatment emergent adverse effect. Short duration of the study is a limitation of the case report. In addition, studies for toxicity and drug interaction are essential. The efficacy of add-on *Brahmi* for paranoid schizophrenia needs to be examined in placebo-controlled randomized controlled trials.

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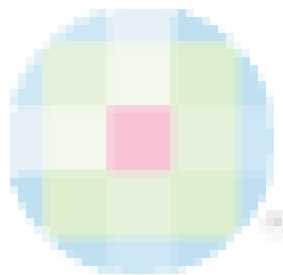
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