



## Letter to the Editor

### Pyridoxine for the treatment of quetiapine-induced hyperprolactinemia and amenorrhea: A case report



To the Editors,

Hyperprolactinemia and hyperprolactinemia related menstrual irregularities, amenorrhea induced by antipsychotic is one of the main reasons, affects the adherence of long-term antipsychotic treatment of patients with schizophrenia. Yet, The dopamine agonists (bromocriptine and cabergoline) and aripiprazole adjunct therapy have been reported to be effective in inhibiting lactation (Oladapo and Fawole, 2012; Yasui-Furukori et al., 2010). The former might exacerbate psychotic symptoms, the latter was reported ineffective to hyperprolactinemia induced by quetiapine (Kane et al., 2009) or benzamide antipsychotics (Paulzen and Grunder, 2007). A small number of studies had suggested that pyridoxine has an antilactogenic effect in postpartum women (Foukas, 1973). Here, we present a case of successful pyridoxine treatment of a quetiapine-induced hyperprolactinemia and amenorrhea in a female schizophrenic patient.

The patient was a 33-year-old woman. She was diagnosed with schizophrenia based on the Structured Clinical Interview for DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) in 2015. After treatment with risperidone 4 mg per day for 29 days, she was recovered and discharged. She took risperidone irregularly and relapsed in October 2017, after she completely discontinued risperidone for 4 months secretly due to amenorrhea. Quetiapine was prescribed to her with 0.2 g twice a day for she refused to take risperidone. Her symptoms were gradually relieved. After discharge, she continued to take quetiapine (0.2 g twice a day) under her mother's supervision. 8 months after hospital discharged, she wanted to cease antipsychotic as she stopped menstruation again for 3 months. Laboratories revealed elevated prolactin of 82.64  $\mu\text{g/L}$  (normal: 4.79–23.3  $\mu\text{g/L}$ ). She received aripiprazole (5 mg per day) adjunct therapy to treat hyperprolactinemia only for 3 days, because she refused to take aripiprazole for serious akathisia. Quetiapine (0.2 g twice a day) plus pyridoxine 30 mg three times a day was administered to her. 18 days later, prolactin decreased as 25.96  $\mu\text{g/L}$  (normal: 4.79–23.3  $\mu\text{g/L}$ ) (Supplementary material). 37 days later, she got menstruation with less capacity (about 2/3 capacity as normal). Then the prescribed pyridoxine was decreased to 20 mg three times a day, she gradually recovered normal period and capacity of menstruation. During the follow up period of more than 5 months, she continued to take quetiapine (0.2 g twice a day) and pyridoxine (20 mg three times) regularly under her mother's supervision, she was clinically stable and didn't suffer from any notable side effects of pyridoxine.

To our knowledge, this is the first report of high dosage pyridoxine successful treatment for hyperprolactinemia and amenorrhea induced by second-generation antipsychotics (SGA) in patient with schizophrenia.

Early in 1973, Foukas first reported an antilactogenic effect of high dosage pyridoxine (600 mg/day) in postpartum women (Foukas, 1973).

Pyridoxine was also found capable of suppressing the rise of prolactin induced by exercise and opioids (Moretti et al., 1982; Vescovi et al., 1985), as well as the chlorpromazine-induced prolactin risen in male rats (Rosenberg et al., 1979). The exact mechanism of pyridoxine suppressing prolactin secretion is still unclear. It is proposed, as co-enzyme of DOPA decarboxylase, pyridoxal phosphate could convert intraneuronally DOPA to dopamine. Hyperprolactinemia induced by SGA is related to dopamine 2 receptor antagonism within the tubuloinfundibular pathway. An increase of pyridoxine might lead to more dopamine in hypothalamus and then inhibit prolactin by an increasing production of prolactin-inhibiting factor (Foukas, 1973; Kamberi et al., 1970).

Pyridoxine is a water-soluble vitamin and considered as a safe medicine. The patient didn't report any side effects after taking pyridoxine with follow-up of more than 5 months. However, the side effect of axonal polyneuropathy and small fiber neuropathy induced by pyridoxine need be evaluated when using pyridoxine.

The present case report implies pyridoxine is an easily available, inexpensive, and safe therapeutic option to hyperprolactinemia and amenorrhea induced by quetiapine. Given this is a case report, further well designed randomized controlled trials are needed to reaffirm this observation.

#### Conflict of interest

All the authors declare no conflict of interest.

#### Contributors

YG, YLY, ZXL, YHL, ZYZ treated the patient. JL and MLL managed the literature searches. MLL wrote the first draft of the manuscript. All authors contributed to and have approved the final manuscript.

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#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.schres.2018.12.008>.

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