



OPEN ACCESS

EDITED BY

Gretchen L. Haas,
University of Pittsburgh, United States

REVIEWED BY

Axel Steiger,
Ludwig Maximilian University of Munich,
Germany
Massimo Tusconi,
University of Cagliari, Italy
Melanie Föcking,
Royal College of Surgeons in Ireland, Ireland

*CORRESPONDENCE

Alfredo Bellon
✉ abellon@pennstatehealth.psu.edu

RECEIVED 04 November 2023

ACCEPTED 16 January 2024

PUBLISHED 30 January 2024

CITATION

Ghahramani A and Bellon A (2024)
Monitoring prolactin in patients
taking antipsychotics.
Front. Psychiatry 15:1333280.
doi: 10.3389/fpsy.2024.1333280

COPYRIGHT

© 2024 Ghahramani and Bellon. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Monitoring prolactin in patients taking antipsychotics

Aria Ghahramani¹ and Alfredo Bellon^{1,2*}

¹Department of Psychiatry and Behavioral Health, Penn State Hershey Medical Center, Hershey, PA, United States, ²Department of Pharmacology, Penn State Hershey Medical Center, Hershey, PA, United States

KEYWORDS

antipsychotics, prolactin, schizophrenia, bipolar disorder, depression, osteopenia/osteoporosis, sexual dysfunction, endocrinology

Despite the benefits of antipsychotic medications, there are known and severe side effects. The cardiometabolic side effects have been well-studied, and there are practice guidelines directing their management (1). In contrast, while most antipsychotics are known to increase prolactin levels, routine monitoring of serum prolactin has not yet been adopted as standard practice. The Clinical Guidelines of The Endocrine Society recommend monitoring of prolactin in symptomatic patients, and in certain pathologic states, however, they do not comment on how to proceed when patients are prescribed medications that are known to increase prolactin levels (2). Given the negative consequences of hyperprolactinemia (3), and the possibility for reasonable modifications to antipsychotic regimens (4, 5), we suggest routine monitoring of prolactin in patients who are prescribed antipsychotics.

The current standard in psychiatric practice is not to measure serum prolactin unless the patient becomes symptomatic, but hyperprolactinemia may be asymptomatic in the short term, and in the long term, there is potential for serious sequelae. In men and women, undetected hyperprolactinemia over time may cause decreased energy, reduced muscle mass, infertility, osteopenia, and bone fractures (6, 7).

Differences between prolactin effects among antipsychotics have been well-studied, with Amisulpride and Risperidone causing the greatest increase in serum prolactin, and Aripiprazole decreasing prolactin levels. The adverse effects are generally dose-dependent, and differential effects are thought to be mostly due to varying degrees of dopamine-2-receptor antagonism (8).

Given the serious side-effects of hyperprolactinemia and the possibilities for changing management by lowering dosage or switching to a different antipsychotic, we propose routinely monitoring prolactin levels in patients who are prescribed antipsychotics. A baseline prolactin level should be drawn prior to initiation of antipsychotics, and a follow-up level after titration is completed. While this may add to the cost of healthcare (9), we believe that the benefits to patients outweighs the financial burden. Just as we monitor

cardiac and metabolic effects of antipsychotics, prolactin monitoring can help us provide more thoughtful and patient-centered treatment.

Author contributions

AG: Investigation, Writing – original draft. AB: Conceptualization, Supervision, Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. This work was supported by the Ling and Esther Tan Early Career Professorship endowment to AB.

References

1. Azfr Ali RS, Jalal Z, Paudyal V. Guidelines versus practice in screening and monitoring of cardiometabolic risks in patients taking antipsychotic medications: where do we stand? *Gen Psychiatry* (2021) 34:e100561. doi: 10.1136/gpsych-2021-100561
2. Melmed S, Casanueva FF, Hoffman AR, Kleinberg DL, Montori VM, Schlechte JA, et al. Diagnosis and treatment of hyperprolactinemia: an endocrine society clinical practice guideline. *J Clin Endocrinol Metab* (2011) 96(2):273–88. doi: 10.1210/jc.2010-1692
3. O'Keane V. Antipsychotic-induced hyperprolactinemia, hypogonadism and osteoporosis in the treatment of schizophrenia. *J Psychopharmacol* (2008) 22(2):70–5. doi: 10.1177/0269881107088439
4. Labad J, Montalvo I, Gonzalez-Rodriguez A, Garcia-Rizo C, Crespo-Facorro B, Monreal JA, et al. Pharmacological treatment strategies for lowering prolactin in people with a psychotic disorder and hyperprolactinaemia: A systematic review and meta-analysis. *Schizophr Res* (2020) 222:88–96. doi: 10.1016/j.schres.2020.04.031
5. Rusgis MM, Alabbasi AY, Nelson LA. Guidance on the treatment of antipsychotic-induced hyperprolactinemia when switching the antipsychotic is not an option. *Am J Health-Syst Pharm* (2021) 78(10):862–71. doi: 10.1093/ajhp/zxab065
6. Majumdar A, Mangal NS. Hyperprolactinemia. *J Hum Reprod Sci* (2013) 6(3):168–75. doi: 10.4103/0974-1208.121400
7. Luciano A. Clinical presentation of hyperprolactinemia. *J Reprod Med* (1999) 44(12 Suppl):1085–90.
8. Gupta S, Lakshmanan D, Khastgir U, Nair R. Management of antipsychotic-induced hyperprolactinaemia. *BJPsych Adv* (2017) 23(4):278–86. doi: 10.1192/apt.bp.115.014928
9. Wu AH. Improving the utilization of clinical laboratory tests. *J Eval Clin Pract* (1998) 4(3):171–81. doi: 10.1046/j.1365-2753.1998.00001.x

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.