Antipsychotic use associated with elevated risk of breast cancer

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A research team from the Center for Safe Medication Practice and Research (CSMPR), Department of Pharmacology and Pharmacy, LKS Faculty of Medicine, The University of Hong Kong (HKUMed)

conducted the world's first systematic review and meta-analysis of observational studies with over 2 million individuals and estimated a moderate association between antipsychotic use and breast cancer by over 30%. This highlights the importance of the risk-benefit assessment of antipsychotic prescription in high-risk patients. The findings are now published in *Epidemiology and Psychiatric Sciences*.

Antipsychotics are commonly prescribed for patients with a range of psychiatric disorders such as schizophrenia, bipolar disorder, major depressive disorder and dementia. Elevated breast cancer incidence has been consistently reported in patients with schizophrenia and bipolar disorder, and antipsychotic use are speculated to potentially explain at least part of the increased risk. Possible mechanisms include antipsychotic-induced hyperprolactinemia, antipsychotic-mediated weight gain and poorer lifestyle among antipsychotic users. With complex mechanism and multiple interacting risk factors, the evidence of the said association remains inconclusive. Therefore, researchers from CSMPR systematically reviewed and conducted a meta-analysis to synthesize the existing evidence and determine the association between antipsychotic use and breast cancer.

Research findings

Nine observational studies with over 2 million adults, including five cohort and four case-control studies, were included for the review and seven for the meta-analysis. All these studies were rated as high-quality (seven to nine out of 10 stars) according to Newcastle-Ottawa Scale, a standardized study quality assessment instrument.

This review found that six out of the nine studies had reported a significant association between the use of antipsychotic medications and an increased risk of breast cancer. The meta-analysis estimated a moderate positive association of an elevated risk of more than 30%

among antipsychotic users. Some reviewed evidence further showed the extent of antipsychotic exposure, such as a longer duration of use, is associated with a higher risk of breast cancer, particularly for antipsychotics with prolactin-elevating properties. For example, a large Finnish case-control study used electronic health records to compare prolonged periods of prolactin-increasing antipsychotic use to those exposed for less than a year, which showed a significantly increased risk among those exposed for at least five years by nearly 60%.

Despite some limitations such as unmeasured confounding effects, this study highlights that breast cancer could be a potential but rare adverse event of antipsychotic medications. The elevated breast cancer risk may be explained by hyperprolactinemia and other complications possibly induced by antipsychotics, such as central obesity, diabetes and cardiovascular disease.

"With the increasingly prevalent use of antipsychotics worldwide, including off-label use, we believe a comprehensive clinical assessment should be made for patients based on the overall safety profile of antipsychotics before prescription," commented Dr. Francisco Lai Tsz-tsun, Research Assistant Professor of the Department of Pharmacology and Pharmacy, HKUMed, the corresponding author of this study.

Based on the findings of this study, antipsychotics with known prolactin-elevating properties should preferably be avoided in patients with risk factors of breast cancer. Appropriate counseling is warranted before prescribing prolactin-elevating antipsychotics, and prolactin level monitoring may be considered. Prompt management of antipsychotic-induced hyperprolactinemia is essential.

More information: Janice Ching Nam Leung et al, Association of antipsychotic use with breast cancer: a systematic review and meta-analysis of observational studies with over 2 million individuals,

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