

APRU Global Health Conference 2021

GLOBAL URBAN HEALTH

16-18 November 2021

The University of Hong Kong, Pokfulam, Hong Kong

Antipsychotic drugs and risk of breast cancer: A systematic review protocol

Abstract: 96

Theme: A. Non-Communicable diseases

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Purpose / Background:

Antipsychotics

- Approved for the treatment of psychotic disorders such as schizophrenia, bipolar disorder, depression, Alzheimer's disease, etc.

Risk factors of breast cancer

- Biologically female, increasing age, family history
- Lifestyle: alcohol consumption, tobacco use, sedative lifestyle
- Chronic conditions: obesity and diabetes mellitus
- Prolactin-elevating agents: antipsychotics, oral contraceptives, etc.

Relationships between antipsychotics and breast cancer

- Several studies observed a higher incidence of breast cancer development in schizophrenia patients, who were likely prescribed with antipsychotic medications
- Antipsychotics usually lead to hyperprolactinemia in patients, which is associated with breast cancer risk by promoting breast cell mutation
- Antipsychotic use also increases the risk of obesity and diabetes mellitus that may result in a higher risk of breast cancer

Scientific Gap

- Existing studies have showed inconsistent results regarding breast cancer risk and antipsychotic use, whereas pre-clinical studies suggest that certain antipsychotics have anti-cancer properties
- Most of the existing evidence on antipsychotic use and breast cancer risk is focused on a female schizophrenia patient population, with expansion of current approval for antipsychotic use to conditions other than schizophrenia and increasing off-label use, it is difficult to determine whether an increase of breast cancer risk is associated with antipsychotic use or schizophrenia
- Earlier studies may have short study timeframes or small sample sizes, which may affect the measurement of the outcome of breast cancer

Objective

- To assess whether antipsychotic use is associated with increased risk of breast cancer

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Methods:

Study Design	This systematic review will only include cohort and case-control studies which have their full text published in English.
Exposure	Antipsychotic use: prescription for any FDA-approved antipsychotic drug for any condition
Outcome	Breast cancer: diagnosis based on the International Classification of Diseases 11 th Revision (ICD-11)



Searching Strategy

- An electronic search will be performed on PubMed, Embase and Web of Science databases
- Key terms will be combined using Boolean Operator in addition to Medical Subject Headings (MeSH) terms: [antipsychotics] AND [breast cancer OR cancer risk]



Review Procedure

- Two authors will independently categorize articles into 'relevant' and 'irrelevant' by reviewing the abstract or full-text of the articles
- Two lists will then be compared and non-conformities will be discussed until agreement is reached



Quality Assessment

- Manuscript information and study characteristics will be extracted from articles
- Newcastle-Ottawa Scale (NOS) will be used to assess the methodological quality
- The full-texts will be appraised by two authors separately and the discrepancies will be discussed



Data Analysis

- Quantitative data will be pooled in statistical meta-analysis
- Effect sizes, weighted mean difference and their 95% confidence intervals will be calculated
- Standard Chi-square tests will be performed to assess study heterogeneity

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Significance & Implications:



To secure measurement outcome

- Some studies focused on the prolactin-elevating consequence of antipsychotics, which may result in an insufficient variety of measurement outcomes
- Earlier studies focused on schizophrenia patients that may already have higher risk for breast cancer due to unhealthy lifestyle habits which could lead to obesity and diabetes while we aim to solely determine the association between antipsychotic use and breast cancer risk



Clinical significance

- Female breast cancer contributed to 2.3 millions new cases in 2020, being one of the most burdensome cancers in the world
- With an increased prescription in patients with various mental illness and off-label use, a conclusive and updated systematic review would help identify whether antipsychotics is a risk factor for breast cancer and determine further intervention



To provide an updated and conclusive review

- Inclusion of in-vitro and animal studies in the existing reviews are limited in providing a human clinical perspective while randomized controlled trials are limited to the short follow-up periods
- Newly published studies may involve broader patient populations given the increasing trend of antipsychotic prescription for other conditions, this systematic review aims to include this updated information



Clinical implications

- Most prescription guidelines do not contraindicate antipsychotics in patients with high-risk to develop breast cancer due to the current perception of the unlikely association between two
- The study results could help provide recommendations and reassurance to clinical practice related to antipsychotic use regarding breast cancer risk