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Improving metabolic monitoring rate for young people aged 35 and younger taking antipsychotic medications to treat a psychosis: A literature review☆

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ABSTRACT

Young people aged 35 and younger who are taking antipsychotic medications to treat a psychosis are a high risk for developing metabolic syndrome due to the adverse effects of the medications. This paper reports the finding of a review of literature to identify interventions to improve metabolic monitoring rates in this group. A review of 478 studies identified 15 articles which met the inclusion criteria. Five articles reported single-intervention studies and the remaining integrated two or more interventions to improve uptake level of metabolic monitoring. As metabolic syndrome can be detected early through metabolic monitoring in young people taking antipsychotics, early intervention is important to improve their physical health trajectory.

Introduction and background

Antipsychotic medications constitute a major component of psychiatric treatment for young people aged 35 and younger who are diagnosed with early episode schizophrenia or other forms of psychosis as they target psychosis-related symptoms such as hallucination and delusions (Correll, Lencz, & Malhotra, 2011). However, these medications are also associated with a range of adverse reactions, for example, the biochemical and physical alterations linked to the use of antipsychotics increase the risk for metabolic syndrome (Correll et al., 2011; De Hert, Dobbelaere, Sheridan, Cohen, & Correll, 2011; Mitchell et al., 2013). Metabolic syndrome is the manifestation of multiple medical conditions, and is one of the most concerning side-effects of commonly used antipsychotics (Correll et al., 2011; De Hert et al., 2011; Marc De, Johan, Ruud Van, Weiping, & Christoph, 2011; Mitchell et al., 2013; Muench & Hamer, 2010). The syndrome is characterised by abdominal obesity, elevated fasting plasma glucose, high serum triglycerides, elevated blood pressure and low high-density lipoprotein cholesterol levels (Muench & Hamer, 2010). As a result, individuals taking antipsychotics have a higher risk of developing comorbid physical health problems (Mitchell et al., 2013; Vancampfort et al., 2015). Life expectancy is also reported to be reduced due to the long-term adverse effects of antipsychotics use and these co-occurring conditions (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015).

The mortality rate of people with mental disorders is two to three times higher than in the general population (Walker, McGee, & Druss, 2015), and premature death occurs 10 to 20 years earlier than people of the same age who do not have a mental disorder (Lawrence, Hancock, & Kisely, 2013). The risk of morbidity and mortality is increased with mental disorders, as 80% of the deaths in this consumer group are associated with largely preventable or treatable co-occurring physical health conditions (Hayes et al., 2012). People with mental disorder taking antipsychotics experience significant increases in weight, glucose level, waist circumference, and cholesterol level (Mitchell et al., 2013). Koyanagi, Stickley, and Haro (2016) highlighted that antipsychotic-induced metabolic side-effects were as significant to increasing the risk of people with mental illness developing metabolic disorders as sedentary lifestyle and other risk factors such as smoking and poor diet.

Current evidence suggests that metabolic disorders and cardiovascular diseases occur at a younger age for people taking antipsychotics compared to their peer groups (Correll et al., 2009; Correll et al., 2011; De Hert et al., 2011; Galling et al., 2016; Marc De et al., 2011). As the first episode of psychosis is most likely to occur in late adolescence or early adulthood, there is a growing emphasis on closely monitor young mental health consumers using antipsychotics for metabolic syndrome

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a) Gin-Liang Chee (80%) – design of review, data extraction and analysis, and write up of article
b) Dianne Wynaden (10%) – supervision of project, write up of article
c) Karen Heslop (10%) – supervision of project, data interpretation and analysis, and write up of article

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(Correll et al., 2009; Marc De et al., 2011). As such mental health nurses working in primary and acute health care systems and services should be responsible for providing mental and physical health care (Happell, Scott, Nankivell, & Platania-phung, 2013; Wynaden et al., 2016). Since 35 years of age or younger is cut-off point for entry into most early psychosis programs (Kessler et al., 2007; Ochoa, Usall, Cobo, Labad, & Kulkarni, 2012) this age range was included in the literature searched for this review.

Young people who receive antipsychotics are two to three times more likely to develop metabolic syndrome, cardiovascular disease and type 2 diabetes mellitus than their peers who do not use antipsychotics (Curtis, Newall, & Samaras, 2012). They are also predisposed to early atherosclerosis and vascular diseases when they are much older (De Hert et al., 2011). Cardio-metabolic adverse effects associated with the use of antipsychotics develop earlier, faster and to a greater extent in younger people than among adults (Correll et al., 2009; Mitchell et al., 2013). Since mental health nurses are at the frontline for providing health care, their central role makes them well-positioned in the identification, prevention and management of metabolic syndrome in young people treated with antipsychotics (Peh, 2008; Thompson et al., 2011).

There are various international guidelines, for example, “Healthy Active Lives”, the “Lester Tool” and “American Diabetes Association/ American Psychiatric Association guidelines”, which contain either the Adult Treatment Panel III (ATP III) or World Health Organization (WHO) criteria for metabolic syndrome, informing health clinicians to routinely and proactively monitor for risk of metabolic syndrome in young people (America Diabetes Association et al., 2004; International Physical Health in Youth Stream, 2015; The Royal College of Psychiatrists, 2016). These guidelines, if practised diligently, may also reverse or stop the trend of premature death among young people taking antipsychotics by addressing potential antipsychotic-related physical health problems early in their treatment trajectory (Laugharne, Waterreus, Castle, & Dragovic, 2016). While guidelines for metabolic monitoring practices are well established, research has shown that the rate for metabolic monitoring in young people taking antipsychotics remains low (Galling et al., 2016; Vancampfort et al., 2015; Vancampfort et al., 2016; Vitiello et al., 2009). Leadership by mental health nurses to address this issue can improve consumer health outcomes.

Aim

This paper reports a range of interventions that may be implemented to improve metabolic monitoring rate in young people treated with antipsychotic medications. This paper also explores the barriers that influence the compliance with these interventions.

Method

Search strategy

The literature review was conducted through a comprehensive electronic search for primary articles from the following databases: MEDLINE, PsycINFO, EMBASE, CINAHL and the Cochrane Library. The Medical Subject Heading (MeSH) terms searched were: “adolescent”, “young adult”, “antipsychotic agents”, “primary prevention”, “health promotion”, “monitoring, physiologic”, and “metabolic syndrome X”. In addition, keywords used in the search were: “youth”, “antipsychotic-induced”, “drug-induced”, “screening”, “prevention”, “metabolic”, “intervention”, and “program”. Boolean operators “AND” and “OR” were used to combine MeSH terms and keywords during the search.

During the search process, all titles and abstracts of the articles were initially extracted by the first author from the five databases and screened for relevance to the review aim. Google Scholar was used to search grey literatures. Two authors independently assessed full text version of any potentially relevant articles to be selected for the review. Reference lists from included articles were examined manually to identify further records. Disagreements at any stages were resolved by consensus, and with a third author as needed.

Inclusion criteria

The review included published articles if they met the following criteria: (a) published between April 2005 and March 2016; (b) reported as original research; (c) reported antipsychotic medications were used by the research participants; (d) intervention methods that target improving the rate for metabolic monitoring; (e) intervention outcomes measured in any parameters or format in association with the Adult Treatment Panel (ATP) III or World Health Organization (WHO) metabolic syndrome criteria (Grundy, Brewer, Cleeman, Smith, & Lenfant, 2004); and (f) age group up to 35 years represented in the sample population.

Exclusion criteria

This review excluded articles containing content related to metabolic monitoring intervention for non-mental health consumers; and also excluded articles that were not written in English.

Appraisal methodology

The quality of the methodology of the included articles was assessed using the Newcastle-Ottawa Scale which is frequently used for evaluating non-randomized studies of interventions (Faber, Ravaud, Riveros, Perrodeau, & Dechartres, 2016). Two authors appraised the quality of articles independently. The Cohen's Kappa correlation was calculated to determine the level of agreement between both assessors (Rousson, Gasser, & Seifert, 2002). Articles were rated in quartiles: unsatisfactory (0–3 points), satisfactory (4–5 points), good (6–7 points), and very good (8–9 points) (Wells et al., 2014).

Result

Study selection

The literature search yielded 485 articles, and 72 potentially relevant articles were retained for second screening after filtering titles and abstracts. On completion of full text screening, 15 articles met the inclusion criteria. The search process is summarised in Fig. 1 as guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram (Moher, Liberati, Tetzlaff, & Altman, 2009).

Quality appraisal

Agreement between reviewers on study quality was moderate (k = 0.556). Overall Newcastle-Ottawa Scale mean score (SD) was 5.3 (1.45); median score was 6; study quality on average was satisfactory; ratings for the studies were between 2 and 7 on the Newcastle-Ottawa Scale (Landis & Koch, 1977). None of the studies were rated as ‘very good’. Adjusted-measure for metabolic monitoring rate was not provided in any articles. Nine articles did not elaborate on the amount of losses to follow-up so the possible risk of bias in included studies cannot be predicted (Barnes et al., 2008; Crabb, McAllister, & Blair, 2009; DelMonte, Bostwick, Bess, & Dalack, 2012; Edelsohn, Parthasarathy, Terhorst, Karpov, & Schuster, 2015; Hendriks & Mahendran, 2011; Moeller, Rigler, Mayorga, Nazir, & Shireman, 2011; O'Callaghan et al., 2011; Peh, 2008; Ronsley, Rayter, Smith, Davidson, & Panagiotopoulos, 2012).