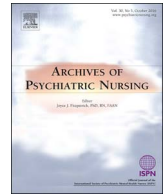




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Reducing the Risk of Cardiovascular Diseases in Non-selected Outpatients With Schizophrenia: A 30-Month Program Conducted in a Real-life Setting

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ABSTRACT

Background: The most common cause of premature death in people with schizophrenia is cardiovascular disease, partially explained by an unhealthy lifestyle, smoking, poor diet and sedentary behavior. We aimed to reduce cardiovascular risk factors.

Method: Naturalistic follow-up study with 54 long-term-treated non-selected outpatients with schizophrenia. The 30-month program consisted of individual guidance, group sessions and normal treatment and care offered in our clinic.

Results: On average, the participating women reduced their waist circumference by 11.4 cm ($P = 0.037$), whereas the participating men increased their waist circumference by 3.3 cm ($P = 0.590$). Patients' consumption of fast food was reduced from 1.2 to 0.8 times/week ($P = 0.016$), just as their consumption of soft drinks was reduced from 0.7 to 0.1 l/day ($P = 0.006$). Their consumption of coffee increased from 1.6 to 2.5 cups/day ($P = 0.086$). The time women spent on light physical activity increased from 134 to 469 min/week ($P = 0.055$). The number of daily cigarettes smoked was reduced by 25.7% for all smokers.

Conclusions: Our program showed that it is possible for women but not for men to reduce their risk factors for developing cardiovascular disease. The program is manageable in most outpatient clinics and can be performed by nursing staff interested in physical health with support from and in cooperation with medical doctors, psychiatrist and leaders/managers.

Introduction

In the last few decades, there has been a focus on physical health in patients with mental illness. The most common cause of premature death in people with schizophrenia is cardiovascular disease (CVD) (Brown, 1997; Lawrence, Kisely, & Pais, 2010; Leucht, Burkard, Henderson, Maj, & Sartorius, 2007), resulting in a much shorter life expectancy for patients with schizophrenia than the general population (Nielsen, Uggerby, Jensen, & McGrath, 2013). In the patients with mental disorders high rates of cardiometabolic risk factors are seen worldwide (Galletly et al., 2012; Lawrence et al., 2010). Cardiovascular morbidity seems to be increasing in people with schizophrenia compared with the decrease seen in the general population (Saha, Chant, & McGrath, 2007). The elevated risk rates of CVD can be

explained by several factors, including unhealthy lifestyle, smoking, poor diet and sedentary behavior (Brown, Birtwistle, Roe, & Thompson, 1999; McCreddie and Scottish Schizophrenia Lifestyle Group, 2003). The side effects of antipsychotic medicine known to induce weight gain and exacerbate metabolic CVD risk factors are also of importance (Allison et al., 1999; Allison & Casey, 2001; Newcomer, 2007). Many of these risk factors are, to some extent, modifiable and are important when aiming to reduce the risk of CVD.

Patients with schizophrenia may have trouble changing their unhealthy lifestyle because of factors related to their illness, cognitive disturbances, negative and positive symptoms, and treatment with psychotropic medicine (De Hert et al., 2011). The healthcare received by patients with schizophrenia tends to be less efficient than that received by the general population with similar physical health problems

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(Lawrence et al., 2010; Saha et al., 2007).

Obesity is a considerable health problem in patients with schizophrenia (Saha et al., 2007), and is associated with a higher risk of developing physical comorbidities such as diabetes, cardiovascular disease and cancer (McCreadie and Scottish Schizophrenia Lifestyle Group, 2003). In addition, obese patients typically experience a poorer quality of life (Medici et al., 2015). Diabetes mellitus type 2 (DM) is twice or more prevalent in patients with schizophrenia than in the general population (Holt, 2004). This is mainly owing to a high prevalence of obesity and the effects of some antipsychotics (Daumit et al., 2008).

Strategies to reduce CVD have received attention in the past, and guidelines for screening and monitoring cardiovascular and metabolic risk factors have been developed specifically for patients with schizophrenia (De Hert et al., 2011). Hence, treatments and care to improve the physical health of patients with schizophrenia are available (Galletly et al., 2016; Newcomer, 2007; Voogdt-Pruis, Van Ree, Gorgels, & Beusmans, 2011; Wobrock, Weinmann, Falkai, & Gaebel, 2009). Nevertheless, a severe problem in improving physical health in people with mental illness is the barriers met when trying to implement new research-based knowledge into clinical practice (Munk-Jorgensen et al., 2015).

Personalized medicine is a medical model that separates patients into different groups – with medical decisions, practices, interventions and/or products tailored to the individual patient based on their predicted response or risk of disease (Regierer, Zazzu, Sudbrak, Kuhn, & Lehrach, 2013). Studies of barriers to implementing lifestyle interventions recommend that interventions should be individual and adjusted to the capabilities of the patient. However, this may be in conflict with the strict protocols of controlled trials (Hudson, Cohen, & Hudson, 2015; Regierer et al., 2013). Importantly, changing lifestyle is a lifelong process. Therefore, naturalistic studies with year-long observation periods in a daily clinical setting are recommended (Pendlebury, Bushe, Wildgust, & Holt, 2007).

Clinically controlled and randomized studies attempting to improve physical health in patients with schizophrenia have documented a reduction in one or more risk factors for CVD (Alvarez-Jimenez et al., 2006; Attux et al., 2011; Attux et al., 2013; Battaglia et al., 2013; Bonfili, Berti, Goss, Muraro, & Burti, 2012; Hjorth, Davidsen, Kilian, & Skrubbeltrang, 2014; Scheewe et al., 2013). There is a need to evaluate the effectiveness of interventional strategies that have already been developed and implemented.

The present study is part of a program centered on the prevention of early death from somatic causes in patients with schizophrenia through then implementation of well-documented methods into daily clinical practice (Blanner Kristiansen et al., 2015; Hansen et al., 2016; Medici et al., 2015).

We aimed to reduce cardiovascular risk factors via a 30-month program in long-term-treated non-selected outpatients with schizophrenia using methods already proven effective in short-term trials and tailored to the individual patients based on their wishes and abilities.

Methods

Design

The study was performed as a naturalistic intervention study including all patients admitted to Regional Psychiatry, Randers, Central Denmark Region. The program was developed from earlier studies using active awareness methods, motivational interviewing, group sessions and staff role modeling (Hjorth, Davidsen, Kilian, and Skrubbeltrang, 2014; Pendlebury et al., 2007; Weiser et al., 2009). The intervention consisted of individual guidance, group sessions and normal treatment and care offered in our clinic, and was aimed at being practical and feasible in daily treatment and care.

The program was started in January 2013. Patients entered the

program consecutively and stayed in the program until the study ended on 30 June 2015. Therefore, the intervention time differed from patient to patient. All patients were invited to attend the sessions, and owing to the voluntary nature of support and guidance, the number of sessions attended by the patients varied from patient to patient.

Sample and setting

All patients receiving long-term treatment and care for schizophrenia in an outpatient clinic were eligible for inclusion in the study. A diagnosis of schizophrenia was based on the 10th revision of the International Classification of Diseases' diagnostic research criteria (World Health Organization, 2015). Fifty-four patients entered the program; however, six patients who lived in a psychiatric facility with specialized round-the-clock care were excluded. Moreover, these six patients were offered a special diet, 'Food for the Brain' which constituted an important difference between these six patients and the rest of the sample.

Measures

All measures were obtained by staff or the project leader (PH) when the patients entered the program and also continuously during the program. Outcome data included weight, height, waist circumference (WC), body fat percentage (fat%), blood pressure (BP), pulse and clinical laboratory blood measurements [total cholesterol, low-density cholesterol (LDL), high-density cholesterol (HDL), triglycerides, and mean glucose (HbA1c)]. Weight and fat% were measured with a Body Composition Analyser Model TBF-300 (Tanita, Amsterdam, The Netherlands).

Information on the extent of cigarette smoking, alcohol consumption, substance use and physical activity level was obtained in personal interviews as part of the clinical routines. The questions from the interview can be seen in Fig. 1. Data on age, sex, diagnoses and use of antipsychotic drugs were extracted from the electronic patient records.

In clinical practice, it is simple and of low cost to use WC as a proxy for adipose tissue distribution and unhealthy body fat in regard to increased risk of CVD and the development of DM (Bigaard et al., 2003; Janssen, Heymsfield, Allison, Kotler, & Ross, 2002). Changes in WC are due to modifications in physical activity level (Poulin et al., 2007) and more and intense physical activity will lower the body fat percentages and increase muscle mass resulting in stable weight and BMI but probably in lower WC.

Four body sites for WC measurements can be used; in our study, the WC was measured at the midpoint between the lowest rib and the iliac crest in the mid-axillary line (Wang et al., 2003) and all staff was instructed in correct measuring. Visceral adiposity index (VAI) was calculated and used as an indicator of visceral fat function associated with cardio metabolic risk (Amato, Giordano, Pitrone, & Galluzzo, 2011).

All psychopharmacological drugs were registered, both by fixed doses and doses as required. In this study, fixed doses of antipsychotic drugs were analyzed according to group N05A in the Anatomical Therapeutic Chemical/Defined Daily Doses (DDD) coding system. All fixed doses of this group were transformed into DDD and added together to total daily doses (TDD).

(<http://www.whocc.no>).

Intervention

The intervention was developed from earlier research conducted by the first author (Hjorth, Davidsen, Kilian, and Skrubbeltrang, 2014; Hjorth, Davidsen, Kilian, Pilgaard Eriksen, et al., 2014; Hjorth et al., 2015; Weiser et al., 2009) and consisted of the following four parts.

Part 1

Separate focus groups with patients and staff members were held

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