



Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Schizophrenia and induced abortions: A national register-based follow-up study among Finnish women born between 1965–1980 with schizophrenia or schizoaffective disorder

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ARTICLE INFO

Article history:

Received 3 February 2017

Received in revised form 12 May 2017

Accepted 30 May 2017

Available online xxxx

Keywords:

Induced abortion

Schizoaffective disorder

Schizophrenia

Women

ABSTRACT

Background: The objectives of this study were to investigate, in women with schizophrenia or schizoaffective disorder, the number and incidence of induced abortions (= pregnancy terminations performed by a physician), their demographic characteristics, use of contraceptives, plus indications of and complications related to pregnancy termination.

Methods: Using the Care Register for Health Care, we identified Finnish women born between the years 1965–1980 who were diagnosed with either schizophrenia or schizoaffective disorder during the follow-up period ending 31.12.2013. For each case, five age- and place-of-birth- matched controls were obtained from the Population Register of Finland. Information about births and induced abortions were obtained from the Medical Birth Register and the Induced Abortion Register.

Results: The number and incidence of induced abortions per 1000 follow-up years did not differ between cases and their controls. However, due to fewer pregnancies, cases exhibited an over 2-fold increased risk of pregnancy termination (RR 2.28; 95% CI 2.20–2.36). Cases were younger, were more often without a partner at the time of induced abortion, and their pregnancies resulted more often from a lack of contraception. Among cases, the indication for pregnancy termination was more often mother-to-be's medical condition. Induced abortions after 12 weeks gestation were more common among cases. However, cases had no more complications related to termination.

Conclusions: The incidence of induced abortions among Finnish women with schizophrenia or schizoaffective disorder is similar to the general population, but their risk per pregnancy over two-fold. They need effective, affordable family planning services and long-term premeditated contraception.

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1. Introduction

De-institutionalization and second-generation antipsychotics with less endocrine side-effects have enabled women with schizophrenia spectrum disorders to be more sexually active, leading to a substantial increase in pregnancies among these women (Miller, 1997; Solari et al., 2009; Matevosyan, 2011; Vigod et al., 2012). However, research focusing on the reproductive health of women suffering from schizophrenia has been scarce, and many of the studies are limited by modest sample sizes. Overall, women with schizophrenia are more likely to

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have poorer family planning knowledge than healthy women (Miller and Finnerty, 1998) and they identify personal relationships as one of the treatment areas with the most unmet needs (Burns et al., 2001). More specifically, women with schizophrenia have been reported to have more lifetime sexual partners (Miller and Finnerty, 1996), to more infrequently use contraception (Seeman and Ross, 2011), and, as a consequence of this, to have more unwanted pregnancies (Miller, 1997) and an increased risk for pregnancy termination (Miller and Finnerty, 1998; Dickerson et al., 2004) than women in the general population.

Induced abortion (= termination of pregnancy, which is performed by a legalized physician) is a delicate and highly culture-specific research topic influenced by religion and gender equality, as well as socio-economic conditions and legislation. Findings related to it can therefore be context-specific. Most studies focusing on induced abortions in patients with severe mental illnesses have been conducted in various parts of the U.S. The generalizability of findings between regions, countries and time periods remains uncertain, particularly pertaining to European contexts. Because of this, there is a need for large-scale research representing different contexts to shed light on the relationship between schizophrenia and induced abortions, as well as on the social and medical circumstances associated with pregnancy termination in patients with severe mental illnesses.

The primary aim of this Finnish register-based national population study was to investigate the number and incidence of induced abortions in women with schizophrenia or schizoaffective disorder. The secondary aims were to study the demographic characteristics and use of contraceptives among women with pregnancies ending in induced abortion, as well as indications of and complications related to pregnancy termination.

We hypothesized that compared to age- and place- of-birth-matched controls, (1) pregnancies of women with schizophrenia/schizoaffective disorder would more often lead to induced abortion, (2) women with schizophrenia/schizoaffective disorder undergoing an induced abortion would be younger and more often without a partner, (3) pregnancies of women with schizophrenia/schizoaffective disorder ending in induced abortion would more often be a consequence of not having used any contraception, (4) indications for pregnancy termination in women with schizophrenia/schizoaffective disorder would more often be medical, and that (5) women with schizophrenia/schizoaffective disorder would more often suffer from complications related to induced abortion.

2. Methods

2.1. Participants

The study sample comprised a Finnish national population of women who were born between 1.1.1965–31.12.1980 and diagnosed with schizophrenia or schizoaffective disorder in specialized health care at some point during the follow-up time ending 31.12.2013 ($n = 5214$).

For each case, five control women were randomly selected from the Finnish Central Population Register, matched for age and place of birth and who had not been diagnosed with schizophrenia, schizoaffective disorder or any other psychotic disorder by the end of the follow-up time. Other mental health disorders, such as depression or mood disorders, were allowed. The total final number of controls was 25,999 because sometimes a control was not found due to strict matching criteria. Also, some of the selected controls had a security prohibition for their personal register data.

2.2. Diagnoses of schizophrenia and schizoaffective disorder

The diagnoses were obtained from the Care Register for Health Care of the National Institute of Health and Welfare. In Finland, psychiatric

classification according to the International Classification of Diseases - Eighth Revision (ICD-8) (World Health Organization, 1965) served in clinical practice between 1969 and 1986 (schizophrenia: 295.0-6, 295.8-9; schizoaffective psychosis: 295.7). This classification was later replaced by DSM-III-R (American Psychiatric Association, 1987), used in clinical practice between 1987 and 1995. However, the diagnoses were converted to ICD-9 (World Health Organization, 1977) diagnoses, when, for example, reporting them to the Care Register for Health Care (schizophrenia: 295.0-6, 295.8-9; schizoaffective psychosis: 295.7). Since 1996, ICD-10 (World Health Organization, 1992) has been used in Finland (schizophrenia: F20; schizoaffective psychosis: F25). The onset of schizophrenia was defined as the day when the disorder was diagnosed and coded in specialized health care.

2.3. Follow-up

The cases and their controls were followed from 1.1.1987 until the individual moved abroad, died, or follow-up ended on 31.12.2013. The information on death or emigration was gathered from the Finnish Central Population Register. Altogether, 340 patients (6.5%) and 264 controls (1.0%) died ($p < 0.001$) and 35 patients (0.7%) and 701 controls (2.7%) moved abroad ($p < 0.001$) during the follow-up. The cases were followed, on average, until the age of 41.6 (SD 5.3) years and, respectively, the controls until the age of 41.9 (SD 4.9) years ($p < 0.001$). When the index day of being diagnosed with either schizophrenia or schizoaffective disorder was taken into account, the average follow-up time of cases was 14.0 (SD 6.9) years, and, respectively, of controls 14.3 (SD 6.9) years ($p = 0.001$).

2.4. Legislation for induced abortions in Finland

The current Finnish legislation of induced abortions dates back to 1970. According to the legislation, an induced abortion can be performed under legal indications, which can be categorized into three classes: a) social (the mother-to-be is under 17 or over 40 years old, has already delivered at least four children, lives in crowded housing conditions, etc.), b) medical (severe illness or handicap of the fetus, mother-to-be's medical condition), or c) ethical (the pregnancy is a consequence of a sexual assault, etc.).

Under the legislation, the pregnancy must be terminated as early as possible, normally within the first 12 weeks of gestation. Depending on the indication, one or two physicians are needed in the permission process. The physician with authority to render an opinion and the operating physician shall not be entitled, without a reason, to refuse to consider a request for termination of pregnancy. In cases with a gestation age > 12 weeks (<7% of all induced abortions), the permission for induced abortion is granted by the National Abortion Board.

According to the Finnish National Institute for Health and Welfare, the current induced abortion rate is approximately 9/1000 women aged 15–49 (Gissler et al., 2012). The most common indication for pregnancy termination is social (approximately 97% of induced abortions). <3% of all pregnancy terminations are performed because of fetal abnormalities (Induced Abortion: Current Care Guidelines Abstract, 2013).

2.5. Induced abortions

Data were obtained from the Finnish Register of Induced Abortions, maintained by the National Institute of Health and Welfare since 1970 and available electronically since 1983. Heino et al. (2017) recently assessed the quality of the Finnish Register of Induced Abortions and compared it to the Finnish Hospital Discharge Register. The authors concluded that the coverage of the register is excellent (97%), and that the detailed data on different variables reported to the register are accurate. Thus, the register provides a valid basis for research and health-monitoring. In this study, the following variables were collected: (a) the date of the induced abortion, (b) the legal indication(s) for the

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