Psychiatry Research 230 (2015) 400–405

Contents lists available at ScienceDirect

Psychiatry Research

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

Changes in determinants of compulsory community treatment over 11 years. A population-based analysis of linked mental health databases

Steve Kisely [a,b,*], Jianguo Xiao [c], Le Jian [c,d]

[a] University of Queensland, School of Medicine, Level 4, Building 1, Princess Alexandra Hospital, 199 Ipswich Road, Woolloongabba, QLD 4102, Australia
[b] Griffith Health Institute, Griffith University, Gold Coast, Queensland, Australia
[c] Department of Health, Western Australia, Perth, Australia
[d] School of Public Health, Curtin University, Perth, Australia

ARTICLE INFO

Article history:
Received 6 May 2015
Received in revised form
14 August 2015
Accepted 16 September 2015
Available online 18 September 2015

Keywords:
Community treatment orders
Epidemiology
Outpatient commitment
Compulsory community treatment

ABSTRACT

Differences in patient characteristics, legislation and service setting may explain variations in the reported efficacy of compulsory treatment orders (CTOs). Our objective was to investigate factors associated with CTO placement in Western Australia and see if there were any changes over the 11 years following their introduction. We used three linked Western Australian databases to compare 2958 patients on community treatment orders with an equal number of controls matched on age, sex and diagnosis, as well as 2832 consecutive controls selected on date of discharge from inpatient care or CTO placement. Multivariate analyses were used to further examine potential predictors of a CTO. The incidence of CTOs, and the characteristics of patients placed on these orders, showed little change over 11 years. They tended to be younger and male with schizophrenia or other non-affective psychotic disorders. Previous health service use as an inpatient or outpatient also predicted compulsory community treatment. Psychiatrists in Western Australia appear to be applying community treatment orders to similar types of patient as elsewhere, but unlike other jurisdictions, use has not increased. We need further research to establish the relative contribution of patient characteristics, legislation and service setting toward the use and outcome of CTOs.

1. Introduction

There is considerable variation in the use of community treatment orders (CTOs). Rates across the world range from 3 to 60 per 100,000 with the Australian state of Victoria having the highest use world-wide (Lawton-Smith, 2005; Light et al., 2012). Some have questioned whether these high rates of use are consistent with Australia's obligations to the United Nations Convention on the Rights of Persons with Disabilities (McSherry, 2008). In most jurisdictions, rates increase in the years following their introduction. In Victoria, for example, there was a three-fold increase in the annual number of people discharged to a CTO over 9 years (Burgess et al., 2006). This rose steadily year-on-year from 919 in 1992 to 2260 in 2000. Increases have also been reported elsewhere such as New Zealand (O'Brien, 2014), Ontario (Malatest, 2013) and England (Manning et al., 2011; Health and Social Care Information Centre, 2013). Descriptive and comparative studies indicate that patients are younger males, with a long history of mental illness, many previous admissions, and a diagnosis of non-affective psychosis or serious affective disorder. (Churchill et al., 2007). An example is a cross-sectional study from Western Australia that was restricted to just the single year following the introduction of CTOs in 1997 (Xiao et al., 2004). However, given the increase in CTOs in many jurisdictions, it is unknown whether the characteristics of patients placed on a CTO have changed over time. To our knowledge, no study has investigated the effects over time on the type of patients placed on a CTO.

This study extends the previous West Australian study by assessing changes over 11 years in the numbers and characteristics of patients placed on community treatment orders. Many studies only consider patients discharged from inpatient units rather than living in the community. We investigated the characteristics of all patients placed on community treatment orders across a whole jurisdiction (Western Australia [WA]), to better understand why certain patients are placed on compulsory treatment. Unlike descriptive studies that have relied on bivariate analyses, we investigated factors associated with placement using multivariate

* Corresponding author at: School of Medicine, The University of Queensland, Level 4, Building 1, Princess Alexandra Hospital, 199 Ipswich Road, Woolloongabba, QLD 4102. Fax: +61 07 3176 5399.
E-mail address: s.kisely@uq.edu.au (S. Kisely).

http://dx.doi.org/10.1016/j.psychres.2015.09.027
0165-1781/

analyses to determine the contribution of each variable while adjusting for the effect of other possible factors. The same limitation applied to a previously published paper from WA on the outcomes of CTOs that used matching and multivariate analyses to adjust for confounding (Kisely et al., 2013). Data on possible predictors of CTO placement in that paper were again restricted to bivariate comparisons of cases and controls and, importantly, because the controls were matched on age, sex and psychiatric diagnosis, it was impossible to determine the strength of any association between these variables and CTO placement (Kisely et al., 2013). Furthermore, the paper did not investigate both the incidence and prevalence of use. Both are required to understand patterns of CTO use. For instance, any increase in the number of people on CTOs could either be due to patients staying on them for extended periods, or to new orders. Finally, it did not consider whether the characteristics of people placed on CTOs had changed over the 11 years of CTO availability, particularly in terms of age, sex and diagnosis

The current Mental Health Act of Western Australia was implemented in November 1997 (Kisely et al., 2013). As in other parts of Australia and New Zealand, it provides for compulsory treatment in the community through the introduction of a community treatment order (CTO). The order cannot exceed 3 months in the first instance but can be extended for a further three months following review by the Mental Health Review Board. After six months a new order must be made.

2. Methods

The methodology described in greater detail elsewhere (Kisely et al., 2013). We used administrative data from Western Australia that cover all private and public hospital separations (patient discharges, transfers to another facility or deaths) and contacts with state mental health services (including public out-patient clinics) for the entire state (Holman et al., 2008). These data have been widely used for epidemiological studies in psychiatry and other medical fields (Kisely et al., 2013; Lawrence et al., 2000, 2001; Norman et al., 1998).

Data sources included the Mental Health Information System (MHIS) of psychiatric inpatient, outpatient, and community contacts, the Mental Health Review Board database of compulsory psychiatric treatment and the Hospital Morbidity Data System (HMDS). The HMDS covered all inpatient treatment, irrespective of specialty, as a marker of general medical and surgical history. Data linkage was carried out by the Western Australian Data Linkage System and this enabled us to assess the psychiatric and medical history of all patients who had been placed on compulsory community treatment in Western Australia.

We followed guidelines for the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) (von Elm et al., 2007). These recommend giving characteristics of study participants including their demographic, clinical and social characteristics as well as information on other relevant variables. They also suggest reporting both unadjusted and confounder-adjusted estimates, along with their 95% confidence intervals, making clear which confounders were adjusted for and why they were included.

The study began from the implementation date of CTOs in November 1997 for the following eleven years. We derived age-adjusted CTO incidence rates using the annual number of newly registered mental health patients from the MHIS and the yearly number of first ever CTO placement cases from the MHRB as denominators and numerators, respectively. For age-adjusted prevalence rates, we used the annual numbers of all mental health patients and all CTO cases in a given year. This was to take into account any change in the overall number of people receiving psychiatric care as captured by the MHIS. The 2001 Australia Standard Population was used in the age standardisation process.

We then explored the role of other factors in initial CTO placement by comparing CTO cases with controls discharged from hospital at a similar time. We selected two control groups. The matched control group consisted of the same number of controls matched on age, sex and mental health diagnosis who were discharged the closest to the date of their matched CTO case, the 'index date'. In the case of the small number of community placements, commencement of the order was used as the index date, previous work indicating that around 85% of orders occurred on discharge from hospital (Kisely et al., 2006). An initial matching stage was necessary because of the large number of potential explanatory variables (Kisely et al., 2013). We extracted anonymised information on both groups covering up to 1 year prior to and 11 years after the index date where available. This included health service use in terms of inpatient stays and outpatient contacts one year prior to CTO placement. We also collected information on the same indicators of health service prior to the implementation of CTOs in 1997, as well as overall duration of psychiatric symptoms. We collected data on successive cohorts and matched controls from the index date for each year (e.g. years 1, 2, 3, 4, 5 etc.) until the end of 2008 to measure changes in the numbers and characteristics of patients placed on a CTO year by year. If continuous variables were skewed, they were dichotomised about the median or 75th percentile, as appropriate. The Health of the Nation Outcome Scales (HoNOS) were added to the MHIS from 2004.

Matching on age, sex and psychiatric diagnosis meant that we could not investigate the association between these factors and CTO placement. We therefore selected a second control group, the consecutive controls, who had a discharge date or start of care episode within two weeks of the index date of any given CTO case.

We initially examined the relationship between the variables of interest and CTO placement using crude or unadjusted ratios. We then used logistic regression to calculate adjusted odds ratios for the contribution of each variable to CTO placement while adjusting for the effect of other possible factors. We included HoNOS scores in sub-analyses from 2004 forwards. Finally, we re-ran all the models replacing health service use in the year prior to CTO placement with health service use prior to the implementation of CTOs in 1997. This was because there was an overlap between the two variables for patients placed on a CTO in the first year of implementation of the Act. It also reduce the possibility of a Type I error through the inclusion of a large number of variables in our models.

There were two models for every analysis. In the first, all variables were entered into the model on the basis of being associated with CTO placement, theoretically, or on bivariate analysis. In the second, we ran a forward stepwise model where variables were entered according to their association with the outcome until no more reached statistical significance. Only variables significantly associated with the outcome of interest were therefore included in the final model.

3. Results

3.1. Descriptive statistics

From November 1997 to December 2008, 2958 patients were placed on an initial CTO (63.7% males). Patients had an average age of 36.3 years (standard deviation = 13.6), ranging from 14 to 91 years. The median age was 34 years. Less than 10% ($n = 282$) were Indigenous Australians. The number of new CTO cases per year varied between 221 and 324 equating to about 15 per 100,000 of