Abstract  

Objectives The present study investigated whether the increased number of psychotropic agents available in Italy in the last 20 years increased the proportion of inpatients being treated with individual medication classes and the proportion receiving combined treatments with agents of the same class or of different classes. 

Methods This study was conducted in South-Verona, Italy. From the local Psychiatric Case Register (PCR) all patients consecutively admitted to the inpatient unit during the years 1981/1982, 1991/92 and 2001/02 were extracted. Drug use at discharge was derived from clinical records, while service use data were extracted from the PCR.  

Results During the six years surveyed 160 patients were admitted in 1981/82, 139 in 1991/92 and 228 in 2001/02. An increasing proportion of subjects receiving antipsychotic, antidepressant and benzodiazepine treatment at discharge was observed. In addition, we found an increasing proportion of patients receiving two or more psychotropic drugs at discharge, which accounted for almost 80% of cases in 2001/02. The number of psychotropic agents prescribed at hospital discharge was positively correlated with the total consumption of psychotropic drugs. A relevant proportion of patients were also dispensed agents for medical conditions, yielding an average number of 3.2 prescriptions in 2001/02. The Lavik score, a summary index of service use, indicated that subjects admitted in 1981/82 were moderate users of psychiatric services, while those admitted in 1991/92 and in 2001/02 were high users of psychiatric services.  

Conclusion This study documented emerging trends toward polypharmacotherapy and higher total doses. Additional pharmacoepidemiological research is needed to clarify both the beneficial and, potentially, adverse effects associated with these trends in psychiatric pharmacotherapy.

Key words  

drug treatment · epidemiology · polypharmacotherapy · inpatients

Introduction  

During the last two decades new generation antidepressant (AD) and antipsychotic (AP) agents have increased the therapeutic options available for subjects with psychiatric disorders (Lawrenson et al. 2000; Santamaria et al. 2002; Mond et al. 2003; Isacsson et al. 1999). New indications have in addition broadened the use of these agents to a wide range of psychiatric conditions and symptoms. Moreover, antiepileptic (AE) agents have been increasingly prescribed to tackle psychiatric symptoms. This evolving context of care has been producing, at a national level, a progressive rise in consumption of psychotropic drugs. In Italy, from 1988 to 1996, an increase of AD sales of 53% was recorded (Barbui et al. 1999), while the consumption of AP agents remained substantially stable from 1984 to 1994, and increased by 54% in the subsequent five years (Barbui et al. 2001).

In addition to sales data, in recent years surveys of prescribing habits have documented emerging trends towards higher total AP doses and polypharmacotherapy (Baldessarini et al. 1995; Centorrino et al. 2002). However, these surveys have some limitations. First, prescribing habits have rarely been studied in different index years to document changes over time in drug use,
and studies where these comparisons were carried out usually considered narrow time intervals. In these studies service use modalities, in addition to drug use modalities, have rarely been described, losing the possibility of understanding whether the use of drugs and services displayed similar or contrasting trends. A second limitation is that surveys tend to focus on specific diagnostic categories, for example on patients with a diagnosis of schizophrenia (McCue et al. 2003; Rothbard et al. 2003). Although this approach precisely describes the use of drugs in that specific condition, it systematically excludes all prescriptions issued with no reference to diagnostic labels, which may account for up to half of the total amount of drug consumption (Weiss et al. 2000; Barbui et al. 2004). On the other hand, studies not focusing on specific disorders usually describe the use of specific drug categories only, not recognizing that a relevant proportion of psychiatric patients are poly-drug users.

Finally, in many studies patients are enrolled on the basis of attending a specific psychiatric service, where cases might be selected on the basis of patient-characteristics (age, diagnosis, severity of illness) or on the basis of service-characteristics (reputation, accessibility), thus generating findings of limited generalizability.

In the present survey of prescribing behaviors we took advantage of the presence of a Psychiatric Case Register (PCR), operating since 1978, in the area of South-Verona (Tansella and Burti 2003). The Italian system of psychiatric care is an ideal setting for implementing and using PCRs, since individuals with psychiatric problems living in a specific catchment area are followed by the psychiatric service of that area, usually a community-based network of in- and out-patient facilities; subjects seeking psychiatric care outside the catchment area are always referred to their catchment area. In this system, PCRs routinely and prospectively collect service use data on unselected populations of typical patients seeking psychiatric care. In this study we used the South-Verona PCR to compare the rate and dose of psychotropic drugs prescribed at hospital discharge in three index periods in the last 20 years. We assessed whether the increased availability of psychotropic agents in the last 20 years increased the proportion of inpatients being treated with individual medication classes and the proportion receiving combined treatments with agents of the same class or of different classes. Service use data were in addition considered to understand whether drug and service use modalities showed similar or contrast trends over time.

Methods

Setting

This study was conducted in South-Verona (about 100,000 inhabitants), an area that includes part of the city of Verona and three neighboring small towns. The main agency providing psychiatric care for the adult population is the South-Verona community mental health service (CMHS), which is run by the Section of Psychiatry, Department of Medicine and Public Health of the University of Verona. The CMHS is a unitary service, in which great emphasis is given to communication between all staff members and to integration between the various clinical activities. The CMHS comprises one inpatient unit located in the general hospital and a network of outpatient and community facilities (Tansella and Burti 2003). The inpatient unit is an open ward of 16 beds located in the academic general hospital which has about 1000 beds. It is a traditional hospital ward, similar to all other medical wards in the hospital and patients can be admitted on a voluntary or compulsory basis.

Since 1978, the year of implementation of the Italian psychiatric reform, the South-Verona Psychiatric Case Register (PCR) routinely records, for all subjects in contact with the CPS, socio-demographic characteristics, ICD-10 diagnoses, past psychiatric and medical history, clinical data, admissions and outpatient contacts (Amaddeo et al. 1997). The PCR also records details of patients who leave the catchment area, and those who die. The PCR, however, does not routinely collect information on prescriptions of psychotropic drug.

The style of working privileges a psychosocial approach, with strong emphasis on continuity of care and rational drug use (Tansella et al. 1998). To assure continuity of care, inpatients are treated by the same clinical team which provides outpatient community care, and pharmacological treatments, dispensed during the acute inpatient phase, are usually continued at discharge. In addition to psychotropic drugs, a comprehensive system of outpatient community interventions, based on patients’ needs, are usually developed and implemented after the admission episode (Tansella et al. 1998). No major changes have occurred in the organization of the CMHS in the last 25 years. However, during this period the community service gradually developed: more staff was available for out-patient and community care, and rehabilitative activities increased. On the other hand the number of hospital beds remained stable (Tansella et al. 1998).

Patients

From the South-Verona PCR all patients consecutively admitted to the inpatient unit during the years 1981/1982, 1991/92 and 2001/02 were extracted. Using the PCR patient code (a code that uniquely identifies individuals) and the date of admission we identified the corresponding clinical records. Clinical records were manually reviewed by two members of the research team (AC and DL) to gather information on the type and dose of psychotropic agents prescribed at discharge. Agents prescribed for medical disorders were also recorded. From the PCR, for each included subject, we extracted the number of outpatient contacts, the number of days in day-care facilities and the number of bed days in psychiatric ward, in the six months before and after the index admission. In order to obtain a cumulative measure of service use, the Lavik index of total consumption of service was constructed using the following principles: 1 outpatient consultation = 1 weight point; 1 day in day-care facility = 2 weight points; 1 day in inpatient service = 3 weight points (Lavik 1983).

Statistical analysis

Categorical data are expressed as numbers and percentages of the overall population with a 95% confidence interval (CI), while continuous data are expressed as means of the overall population with a 95% CI. Psychotropic agents’ daily doses in milligrams were converted into multiples of the Defined Daily Dose (DDD) for each drug by dividing the prescribed daily dose (PDD) by the DDD (PDD/DDD). The DDD is the international unit of drug utilization approved by the World Health Organization for drug use studies (WHO 2003). It is a theoretical unit of measurement defined as the assumed average maintenance daily dose for a drug, used for its main indication in adults. Expression of drug use in terms of multiples of DDDs allows to calculate, for each patient, a cumulative measure of drug consumption taking into account the concurrent use of more than one agent. In this case, for example the concurrent use of two antipsychotic agents, the sum of each agent’s PDD/DDD ratio provides an overall estimate of drug consumption. This methodology is routinely