

Implementation Study

Reducing Antipsychotic Polypharmacy Among Psychogeriatric and Adult Patients with Chronic Schizophrenia

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Abstract

Introduction: At the Institute of Mental Health/Woodbridge Hospital, 55% of the long-stay patients are on more than two antipsychotics for treatment of chronic schizophrenia. Our aim was to reduce antipsychotic polypharmacy (APP) among chronic schizophrenia inpatients at the long-term wards at the Institute of Mental Health, Singapore from 2006 to 2008.

Methodology: Using Clinical Practice Improvement Program (CPIP) methodology and using a Plan, Do, Study, Act approach, we surveyed patients, physicians, and nurses for responses regarding reducing the amount of APP for psychiatric patients. The first CPIP (CPIP1) was conducted from August 2006 to January 2007, and focused on psychogeriatric chronic schizophrenia inpatients. This methodology was spread to a second CPIP (CPIP2) from April 2008 to October 2008, which focused on adult chronic schizophrenia inpatients.

Results: Both CPIPs were successful in the reduction of APP within the geriatric and adult long-term patients. For CPIP1, eight patients had their antipsychotics reduced. There was a reduction of an average chlorpromazine-equivalent dose per day from 375 mg per patient to 170 mg. For CPIP2, the average number of antipsychotics was reduced from 2.9 to 2.27 from July 2008 to October 2008. There was a reduction of an average chlorpromazine-equivalent dose per day from 1523 mg per patient to 1246 mg. There was no documented relapse within six months of implementation of both the projects.

Conclusion: APP in long-term patients suffering from chronic schizophrenia can be safely reduced with proper clinical titration, aided by guidelines and protocols.

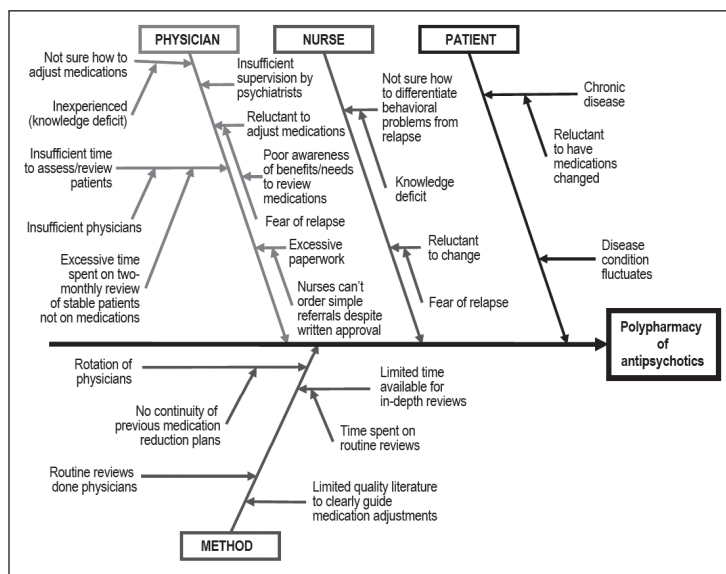


Figure 1. Cause and effect diagram.

Introduction

Singapore is a small country in Southeast Asia with a land area of 710.3 square kilometers in 2009.¹ As of June 2010, Singapore's total population was 5.08 million.¹ The Institute of Mental Health/Woodbridge Hospital is the only state tertiary mental hospital in Singapore providing multidisciplinary psychiatric services. Our hospital serves approximately 2000 inpatients and has a comprehensive network of outpatient clinics and day centers islandwide outside its main campus at Buangkok Green Medical Park.²

Antipsychotic polypharmacy (APP) refers to the concurrent use of two or more antipsychotic medications in a single patient.³ It is recommended that minimum effective doses of antipsychotics should be prescribed, specifically in the range of 300-1000 mg of chlorpromazine equivalents per day,⁴ APP and excessive dosing is common in clinical practice. In 2000, Chong et al⁵ published a study at the Singapore Institute of Mental

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Health showing that the rate of APP was 59% of 534 patients with chronic schizophrenia with a median daily dose of 400 mg chlorpromazine equivalents (range 50-2875 mg). In 2004, in a multicentered Asian study, Sim et al⁶ found that APP was 45.7% (n = 1097) of the patients with wide intercountry variations. In this study, the most commonly prescribed antipsychotics in Singapore were chlorpromazine, haloperidol, and trifluoperazine. Hung and Cheung⁷ in a Hong Kong study showed that APP was the main determinant of high-dose antipsychotic prescribing.

APP is a significant problem among long-term inpatients at the Institute of Mental Health in Singapore. In December 2008, hospital audit findings showed that 55% of the long-term inpatients were on more than two antipsychotic medications for treatment of chronic schizophrenia.

Methodology

Part 1

A multidisciplinary team comprised of psychiatrists, nurses, and a pharmacist embarked on a Clinical Practice Improvement Project (CPIP1) from August 2006 to January 2007. The target population was all eligible psychogeriatric long-term inpatients on three wards, with a time period of six months, and a desired outcome that no patient would experience symptom relapse.

The three aims were: 1) reduce the number of patients on more than two antipsychotic medications (including depot medications); 2) reduce the average chlorpromazine (mg) dose equivalence per patient; and 3) reduce the average number of antipsychotic medications per patient. The team used the Plan, Do, Study, Act (PDSA) methodology.

Through a brainstorming session, the main contributors to the problem were identified as: lack of guidelines; lack of continuity of care; fear in physicians and nurses that patients would relapse; insufficient time for review; and physician inexperience (Figure 1).

The team surveyed patients, physicians, and nurses, to gauge their response to reducing the amount of antipsychotic medication for patients (CPIP1 survey).

Then the team developed simple guidelines/protocols including a dose-reduction table for physicians to use during their two-monthly reviews (Figure 2).

Finally, all ward staff were briefed and trained on the project and the guidelines.

Part 2

This CPIP1 methodology was spread to another project (CPIP2), from April 2008 to October 2008, directed at adult long-term inpatients with schizophrenia on

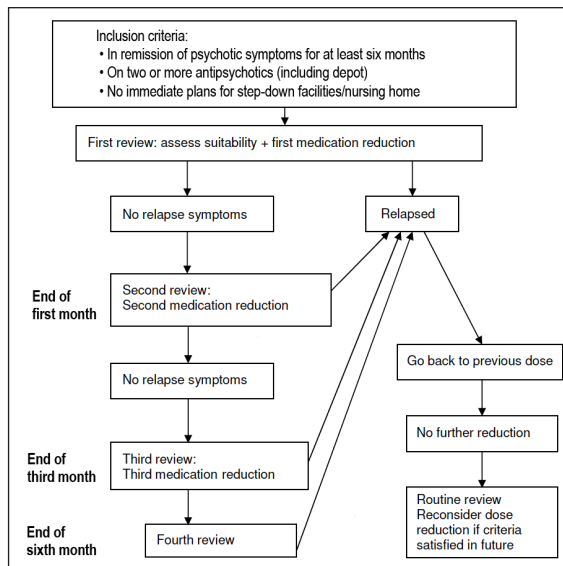


Figure 2. Medication reduction algorithm 1.

NB: 1) Patients are to be reviewed for medication adjustment any time they develop relapse symptoms; 2) For patients on both depot and oral antipsychotics, the depot form should be reduced first unless the patient has swallowing difficulties or is noncompliant with oral medications.

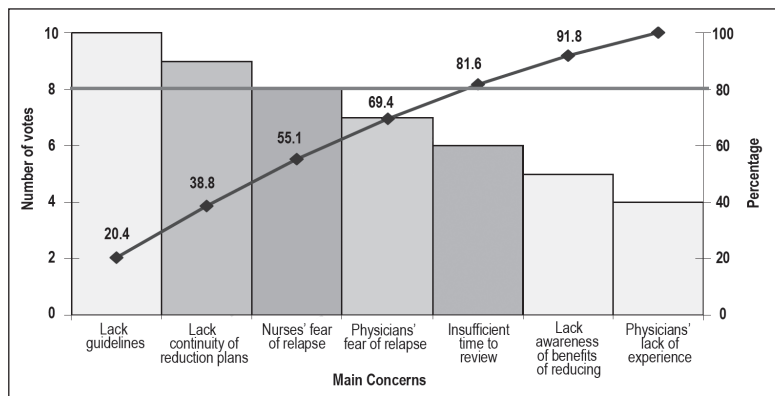


Figure 3. Causes of antipsychotic polypharmacy in long-stay psychogeriatric wards (CPIP1). CPIP1 = Clinical Practice Improvement Project 1.

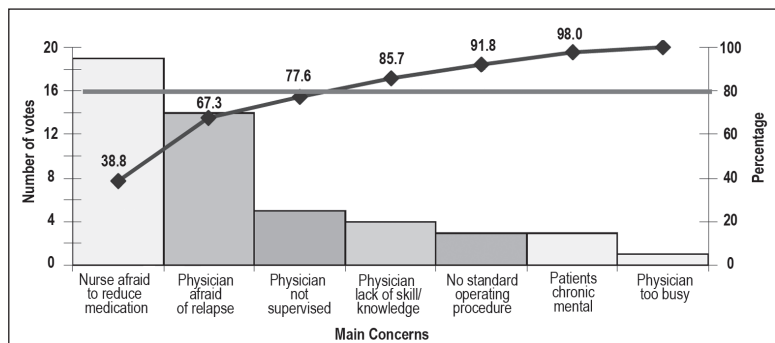


Figure 4. Causes of antipsychotic polypharmacy in adult long-stay wards (CPIP2). CPIP2 = Clinical Practice Improvement Project 2.

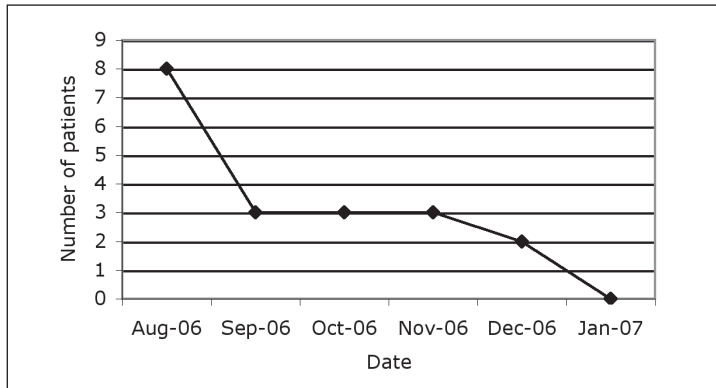


Figure 5. Reduction of antipsychotic polypharmacy. Number of psychogeriatric long-term patients (CPIP1).

CPIP1 = Clinical Practice Improvement Project 1.

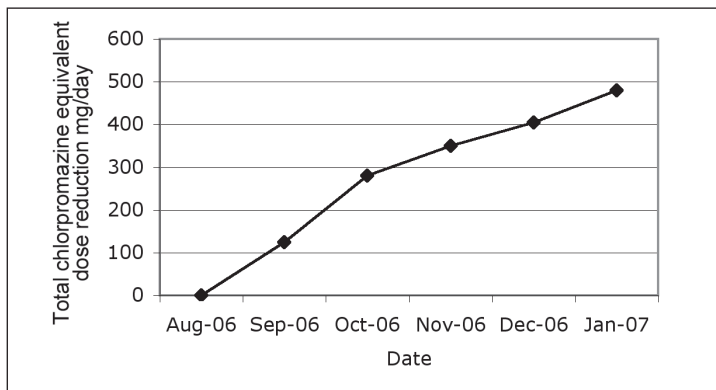


Figure 6. Cummulative reduction of total chlorpromazine-equivalent dose mg/day. Results for psychogeriatric long-term patients (CPIP1).

CPIP1 = Clinical Practice Improvement Project 1.

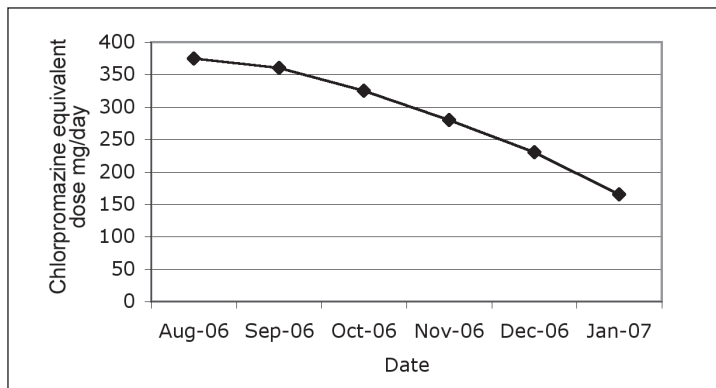


Figure 7. Reduction of mean dosage of chlorpromazine equivalent over time. Results for psychogeriatric long-term patients (CPIP1).

CPIP1 = Clinical Practice Improvement Project 1.

three wards. The objective was to reduce the use of APP within six months without acute symptom relapses. The team also used the PDSA methodology.

Results

Part 1

The preliminary survey of the perceptions and beliefs of APP among patients (n = 14), nurses (n = 13), and physicians (n = 17) was conducted in 2006. The results indicated that 57% of patients preferred to have antipsychotic medications reduced, 29% preferred to maintain their current status, and 14% had no preference, also 86% had no strong objection to a proposed change. The results for nurses indicated 60% of nurses felt it beneficial to reduce antipsychotic medications, to reduce side effects, and 40% preferred to maintain current recommendations. The results for physicians indicated that: 82% feared relapse of the condition; 71% respected nurses' fear of relapse; 70% felt that there was a lack of supervision/guidelines; 59% felt they had insufficient time; and 35% did not see the benefit. In 2008, a second survey would follow.

Causes of APP in the long-term psychogeriatric wards include: 1) lack of guidelines; 2) lack continuity of reduction plans; 3) nurses' fear of patients' relapse; 4) physicians' fear of patients' relapse; and 5) insufficient time for review (Figure 3).

In CPIP1 the team developed a clinical protocol for the reduction of APP in long-term psychogeriatric patients. This protocol was spread to CPIP2 (Figure 4). The aim of the clinical protocol was to develop simple guidelines for physicians to follow during their two-monthly reviews.

CPIP1: For the geriatric population, 8 patients had their antipsychotic medications reduced, 4 patients had their antipsychotic medication injections stopped, 3 patients had improvement in their blood pressure readings, 3 patients had significant improvements in reduction of their drug side effect symptoms, no patients experienced falls or urinary tract infections, 2 patients showed improvement in mental alertness and in their physical activity, and there was a reduction of an average chlorpromazine equivalent dose per day from 375 mg per patient to 170 mg (Figures 5-7).

Part 2

In 2008, CPIP2, a survey of the perceptions and beliefs among nurses (n = 14) and physicians (n = 17) of antipsychotic medication use was conducted. The survey showed that all (100%) of the nurses wanted to reduce APP; 90% of the nurses saw the benefits and were eager to reduce APP; 79% of

nurses expressed that reducing APP would reduce side-effects; and more than 50% expressed that it would reduce medication error and drug-drug interactions. For physicians, 88% feared that reducing APP would cause a relapse; 65% saw the benefit of reducing APP; and 59% expressed concern that they would encounter patients' and nurses' resistance. About 50% of physicians indicated that they were not familiar with the patients and that there was a lack of guidelines; 29% did not see the benefits to APP reduction and reported that there was a lack of clinical supervision.

Causes of APP in the long-term adult wards include: 1) nurses' resistance and fear of reducing antipsychotic medications, and 2) physicians' fear of patients' relapse in the event of reduction of APP (Figure 4).

CPIP2: For the adult long-stay patients, there was a reduction of the average number of antipsychotics from 2.9 to 2.27, a reduction of an average chlorpromazine equivalent dose from 1523 mg per patient to 1246 mg, and there was no documented relapse within six months of implementation of both the projects. Both CPIPs were successful in the reduction of APP within geriatric and adult long-term patients (Figures 8-10).

Discussion

APP is described by Stahl⁸ as a "dirty little secret," and is a frequent and unrecognized phenomenon among clinicians. Although it is common in clinical practice, APP is not evidence-based.⁹

These significant results demonstrate that APP in long-term patients suffering from chronic schizophrenia can be safely reduced with proper clinical titration and monitoring. The protocols and flow charts can be applied to all the long-term wards at the Institute of Mental Health/Woodbridge Hospital. A Japanese study by Suzuki and Uchida et al,¹⁰ involving chronic schizophrenia patients in which antipsychotic combination regimen (polypharmacy) was switched to a treatment with the single main antipsychotic (monotherapy) in cross-tapered fashion, showed that 55% of 44 patients remained stable at 24 weeks of evaluation. Similarly, Ito¹¹ showed that quality and performance improvement were emerging to reduce APP prescriptions in Japan. With adequate guidance, supervision, and support, junior physicians can be empowered to make decisions on drug reduction for patients. APP reduction can be safely accomplished for long-term stable psychiatric patients with a well-supervised review aided by guidelines and protocols.

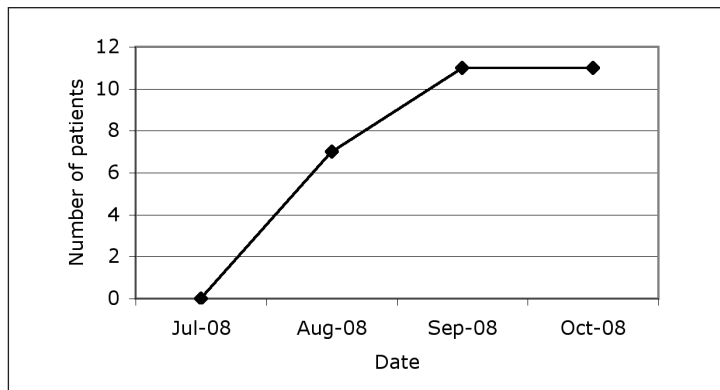


Figure 8. Cumulative number of patients who reduced antipsychotics. Results for adult long-term patients (CPIP2).

CPIP2 = Clinical Practice Improvement Project 2.

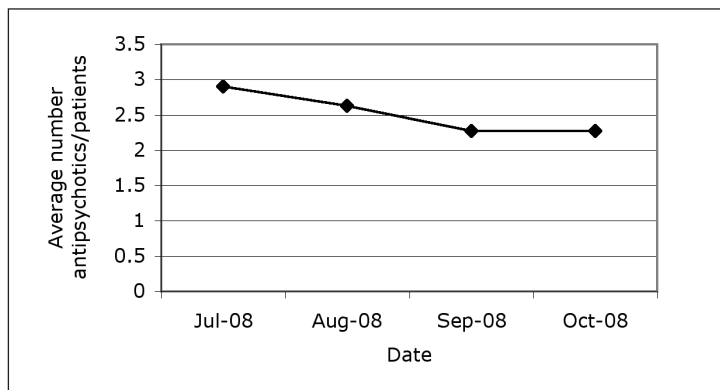


Figure 9. Reduction of average number of antipsychotics per patient. Results for adult long-term patients (CPIP2).

CPIP2 = Clinical Practice Improvement Project 2.

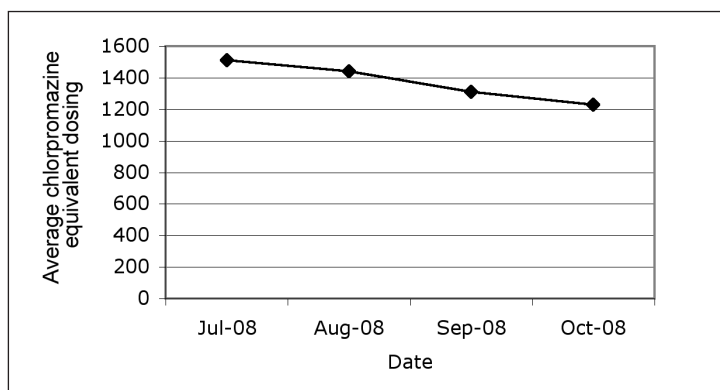


Figure 10. Reduction of average chlorpromazine equivalent dose mg/patient. Results for adult long-term patients (CPIP2).

CPIP2 = Clinical Practice Improvement Project 2.

In another Japanese study by Ito et al,¹² APP and excessive dosing were influenced by the psychiatrist's skepticism towards the use of algorithms and nurses' requests for more drugs. Hence, constant education and evidence-based results are essential to change the staff's mind-set about drug reduction for patients.

The benefits of reduction of APP affects patients, physicians, nurses and hospitals. A naturalistic systematic study by Glick et al¹³ showed that for most stabilized, chronic patients with schizophrenia, tapering adjunctive medications did not change outcome.

APP adversely affects quality of life among patients, resulting in higher total doses of multiple neuroleptics, higher use of concomitant anticholinergic medications, underutilisation of atypical neuroleptics,⁵ drug side effects,¹⁴ drug interactions and compliance issues. Increasing an antipsychotic medication's daily dose was associated with decreased cognitive performance.¹⁵

APP adds substantial cost burden to the treatment of patients suffering from chronic schizophrenia.^{16,17} A study of five US Medicaid programs showed that cost savings from limiting APP could be significant.¹⁸ A study of 116,114 patients within the California Medicaid Program showed that 4.1% received a combination regimen, and that APP was the most expensive form of second-generation use.¹⁹

In conclusion, APP in long-stay patients suffering from chronic schizophrenia can be safely reduced with proper clinical titration and monitoring. Physicians can increase their confidence in reducing the number of antipsychotic medications for patients using the guided protocols. All staff and patients expressed satisfaction with project interventions. There were also significant cost savings for the reduction of APP. ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

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