Rehospitalization rates for depot antipsychotics and pharmacoeconomic implications: comparison with risperidone

Moore D B, Kelly D L, Sherr J D, Love R C, Conley R R

Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
The use of atypical and depot antipsychotic agents was studied. The atypical agent was risperidone, whilst the depot agents were haloperidol decanoate or fluphenazine decanoate.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised male and female schizophrenic patients who had been discharged from psychiatric hospitals.

Setting
The setting was primary and secondary care. The study was conducted in Spring Grove Hospital Centre, Baltimore, USA.

Dates to which data relate
The data on patients taking haloperidol decanoate or fluphenazine decanoate were gathered from March 1994 to December 1996. The data on patients prescribed risperidone were obtained from another study of patients discharged from hospital during the same time period (see Other Publications of Related Interest). The price year was not stated.

Source of effectiveness data
The effectiveness data were derived from two studies with similar study designs.

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient groups using the cost data from a single hospital.

Study sample
The study sample comprised 14 patients prescribed haloperidol, 29 prescribed fluphenazine and 75 prescribed risperidone. The proportion of men was 64% in the haloperidol group, 69% in the fluphenazine group, and 61% in the risperidone group. Half of the patients were black. The study included cohorts of consecutive non-randomised patients, and no power calculation was carried out to determine the sample size.
All of the patients discharged with a prescription for the drugs under evaluation were included in the study. All of the patients were diagnosed with schizophrenia or schizoaffective disorder. The haloperidol recipients included 8 (57%) with paranoid schizophrenia, 4 (29%) with undifferentiated schizophrenia, 1 (7%) with catatonic schizophrenia and 1 (7%) with schizoaffective disorder. The fluphenazine recipients consisted of 10 (34%) with undifferentiated schizophrenia, 9 (31%) with schizoaffective disorder, 8 (28%) with paranoid schizophrenia, and 2 (7%) with residual schizophrenia. There was no report of any patients refusing to participate.

Study design
This was a prospective cohort study. The patients on haloperidol or fluphenazine were discharged from a single hospital, while the patients on risperidone were from all hospitals in the area. The duration of the follow-up ranged from 12 to 21 months. No loss to follow-up was reported.

Analysis of effectiveness
The primary health outcome used in the analysis was the rate of rehospitalisation. There was no adjustment for possible confounders. The analysis was conducted using the reported hospitalisations for the participants studied.

Effectiveness results
For schizophrenic patients discharged with prescriptions for haloperidol decanoate and fluphenazine decanoate, the times courses to readmission differed but not significantly (chi-squared 0.21, d.f.=1, p=0.643).

The rehospitalisation rate for haloperidol recipients was 36% (95% confidence interval, CI: 11 - 60) at 1 year and 44% (95% CI: 18 - 70) at 2 years. The rehospitalisation rate for fluphenazine recipients was 21% (95% CI: 7 - 35) at 1 year and 38% (95% CI: 20 - 56) at 3 years.

The mean (+/- standard deviation) time spent in the community was 294 (+/-232) days for patients taking haloperidol, and 346 (+/-188) days for those taking fluphenazine.

The rehospitalisation rate for risperidone recipients was 17% (95% CI: 9 - 25) at 1 year and 34% (95% CI: 20 - 48) at 2 years.

The mean time spent in the community was 360 days for patients taking risperidone.

Clinical conclusions
Risperidone was more effective (although not statistically significantly so) than the depot antipsychotic agents.

Modelling
The rate of readmission for haloperidol decanoate or fluphenazine decanoate groups was estimated by Kaplan-Meier analysis.

Measure of benefits used in the economic analysis
The authors did not derive a measure of health benefit. The economic analysis should be considered as a cost-consequences design since the benefits were associated with the effectiveness results.

Direct costs
The costs were not discounted because the length of follow-up in the study was less than 21 months. The direct costs included the hospitalisation rates and the drug treatment. The mean dose (+/- standard deviation) was 163.69 (+/-98.04) mg/month for haloperidol recipients, 86.21 (+/-65.11) mg/month for fluphenazine recipients, and 5.6 (+/-3.2) mg/day for risperidone recipients. The rates of hospitalisation were derived from the studies analysed. The same mean cost of
hospitalisation was used for all groups. This was based on a stay of 187 days, at a cost of $347 per day. The price year was not stated. The costs of outpatient service utilisation, administration, and dispensing were not considered.

**Statistical analysis of costs**
The costs were reported as average costs.

**Indirect Costs**
No indirect costs were evaluated.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was performed.

**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section.

**Cost results**
The average cost per hospitalisation was $64,889. This was multiplied by the rate of rehospitalisation at one year to give the average annual hospitalisation costs. These were $13,627 for fluphenazine, $23,360 for haloperidol, and $11,031 for risperidone. These figures, when added to the cost of medication, produced annual costs of $13,693 for fluphenazine, $23,649 for haloperidol, and $12,137 for risperidone.

**Synthesis of costs and benefits**
No synthesis of costs and benefits was performed.

**Authors' conclusions**
Fluphenazine decanoate may offer some cost advantages over haloperidol decanoate for maintenance antipsychotic treatment. The overall cost of risperidone was similar to that of fluphenazine decanoate, despite its higher acquisition costs, due to the lower rehospitalisation rates and the longer time spent in the community.

**CRD COMMENTARY - Selection of comparators**
The choice of the drugs to be studied was justified by the authors on the grounds that the drugs were associated with improved compliance and potentially better management of schizophrenic patients.

**Validity of estimate of measure of effectiveness**
The effectiveness estimates were based on two cohort studies. There was some evidence that the samples were representative of the study populations. However, although both studies were carried out simultaneously by the same set of authors, they were published separately. The comparability of the different intervention groups was not analysed or adjusted for, on account of the lack of randomisation. The analysis of effectiveness only considered the hospitalisation rates. It did not analyse the potential differences in the mean length of stay between the intervention groups, or acknowledge any changes in health or quality of life.
Validity of estimate of measure of benefit
The authors did not derive a summary measure of health benefit. The analysis was, therefore, of a cost-consequence design.

Validity of estimate of costs
The cost estimation did not account for potential differences in the mean length of stay; a mean cost per admission was used which could have mitigated important differences. Some potentially relevant cost categories were not included, such as outpatient service utilisation and private costs. In addition, the authors only used the point estimates for the rate of readmission at 1 year. This is potentially misleading as, not only did they find no significant difference, but there was also a large amount of variability, which could have reversed the costs.

Other issues
The authors considered generalisability in that they claimed that their sample was representative of the population. They also made comparison with other studies and identified many of the limitations mentioned in this abstract. However, they appear to have presented their results selectively, by only reporting the costs that were derived from the single point estimates of readmission rates.

Implications of the study
The authors suggested that risperidone could be considered as a first-line therapy for use in the treatment of schizophrenia and related disorders. This recommendation should be treated with caution considering the flaws in measuring the effectiveness and the lack of cost data.

Source of funding
None stated.

Bibliographic details

PubMedID
9872689

Other publications of related interest
Conley RR, Love RC, Kelly DL, et al. Rehospitalization rates of patients recently discharged on risperidone and clozapine. 21st Annual College of International Neuropsychopharmacology; 1998 Jul 13; Glasgow, UK.

Indexing Status
Subject indexing assigned by NLM

MeSH
Antipsychotic Agents /economics /therapeutic use; Baltimore; Chronic Disease; Delayed-Action Preparations /economics /therapeutic use; Disease-Free Survival; Female; Fluphenazine /analogs & derivatives /economics /therapeutic use; Haloperidol /analogs & derivatives /economics /therapeutic use; Humans; Length of Stay; Male; Patient Readmission /economics; Risperidone /economics /therapeutic use; Schizophrenia /drug therapy /economics; Time Factors

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