

Pharmacoeconomic Assessment of Allopathic Versus Homeopathic Strategies: Implications for Prescription Recurrence

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Abstract

This is a pharmaco-economic study to assess the impact of different, cost-specific pharmacological strategies on the recurrence rate of prescriptions in the treatment of cold symptoms. The recurrence rate of prescriptions raise when allopathic strategies are preferred to homeopathic alternatives. No significant differences were observed between gender groups, while age was marginally significant. Inter-subjects heterogeneity was not significant. Costs of homeopathic and allopathic treatments were recorded within each prescription.

Introduction

These studies are often carried out by comparing medical effectiveness, quality of life and costs resulting from patients who undergo a homeopathic treatment, to the outcomes from a control group, typically treated by conventional mainstream medicine. Although cost data should be collected prospectively, as a part of a pragmatic clinical trial, these studies are time-consuming and quite expensive [1]. As a result, the literature on the cost-effectiveness of homeopathy is often based either on *post-hoc* analysis of past prospective studies or on retrospective studies or comparing the costs of homeopathic treatments in a group to the cost of conventional drugs which otherwise would be prescribed for the observed subject [2].

Studies on cost-effectiveness of homeopathy aim to show that homeopathic cure strategies are less expensive than conventional medicine and that health costs could be lowered if mainstream therapies would be replaced by homeopathy [3]. A decrease in admissions to hospital outpatient services and pharmaceutical utilization has been reported when complementary medicine was used in conjunction with conventional medicine. However, some data have suggested that including complementary medicine may increase overall costs for adults as it is used as an add-on rather than a replacement.

Regressing the observed inter-prescription intervals on this indicator can help testing the impact that the financial effort for a specific pharmacological history has on the rate of prescriptions occurrences [4]. We modeled the rate at which prescriptions occurred by exploiting a Cox proportional hazards model. Under the simplifying assumption that the rate at which prescriptions occur varies proportionally with the economic relevance of a pharmacological strategy, this approach allows to estimate the effect of a treatment's relative cost on the rate of medical interventions. We also extended this analysis by including a random effect and thereby adjusting for the presence of possibly unobserved confounding factors [5].

Materials and Methods

A stratified sampling scheme was adopted to draw a sample of 139 families for follow up. Sample size was determined according to the available funds for the present project. Stratification variables included the average age of the family, residence and family size. For each subject, the dates of the prescriptions were recorded [6]. The treatments prescribed each time were clustered into two classes, namely conventional or homeopathic, and the relating costs recorded. Homeopathic treatments included purely homeopathic, antroposophical and homeo-tossicological remedies. In keeping with

other studies, total costs of homeopathic and allopathic treatments were similar [7].

Statistical Analysis

The main goal of the statistical analysis exploited in this study was to test the impact of the economic relevance of allopathic versus homeopathic strategies on the prescriptions patterns experienced by the observed subject [8].

For each subject, the number of days between any two prescriptions was calculated. We also evaluated the cumulative costs of allopathic and homeopathic prescriptions occurred up to the right end of each interval [9]. The relative difference between allopathic and homeopathic cumulative costs was calculated for each interval: this cost-incidence index takes the value of -1 for a subject following a pure homeopathic therapy up to the date relating to the right end of the interval and $+1$, in case of a pure allopathic therapy. When the costs of the two strategies are equal, the index takes the value 0 . Negative (positive) values indicate that the cumulative homeopathic costs were larger (lower) than their allopathic counterpart [10].

Conclusion

The alternative approach pursued in this article was based on taking the rate at which prescriptions occur in a subject as the outcome of interest, leaving the sampled subjects free to change treatment strategy during the follow up. We found that the rate of event occurrences can be predicted by the cumulative history of prescription costs experienced by a subject. Specifically, patients who favor homeopathy experience a reduced risk of prescriptions re-occurrence, compared to those who favor an allopathic pharmacological strategy.

Under the assumption that an observed prescription interval

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is a marker for cold symptom recurrence, our analysis would offer evidence that a homeopathic strategy is associated with a reduced risk of symptoms recurrence. Although this hypothesis is likely in the present case study, we should not ignore that our analysis is based on prescriptions whose costs were reimbursed by the insurance company, hence excluding possible events which were not reported to the company. Furthermore, our study lacks of data on medical effectiveness, such as benefits experienced by the patients, either self-reported or reported by physicians. For these reasons, the hypothesis that nonoccurrence of new prescriptions in a subject's history can be interpreted as nonoccurrence of further symptoms remains an assumption and cannot be rigorously tested on the basis of the available data. Caution is however necessary in the interpretation of this result. First, our results cannot be generalized to the Italian population, since we considered a cohort of journalists' families and the age distribution of the sample does not emulate that of the Italian population. Secondly, homeopathy and conventional medicine were in this article compared according to their costs and, as a result, we assume that a strategy is favored over the other when a strategy's cost is higher than the cost of the alternative strategy. Third, this research was based on cold symptoms, to collect a reasonable number of cases in a follow up of 40 months, and cannot be generalized to other types of symptoms. Fourth, our study did not include the observation of possible confounding factors such as subjects' compliance with prescriptions, practitioner's habits, average duration of therapies and daily therapy costs. We tested our estimates for the presence of significant heterogeneity and we found that our sample is not significantly heterogeneous. However, it is possible that

the homogeneity found in the data is the result of a follow up of limited length.

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