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Physicians' preferences for prescribing oral and intravenous anticancer drugs: A Discrete Choice Experiment

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ARTICLE INFO

Article history:

Available online 25 October 2011

Keywords:

Discrete Choice Experiment
Conjoint analysis
Preference
Medical decision-making
Anticancer drugs
Oral chemotherapy
Intravenous chemotherapy
Chemotherapy administration
Reimbursement

ABSTRACT

Although efficacy and tolerability are classical criteria for treatment choice, patient adherence and tariff issues related to novel oral anticancer drugs may also influence therapeutic decisions. We estimated the relative influence of efficacy, tolerability, expected adherence and route of administration of a chemotherapy treatment on 203 French physicians' preferences who participated in a Discrete Choice Experiment (DCE), a quantitative method used to elicit preferences. From a questionnaire with six scenarios, respondents had to choose between two treatments which differed with respect to these four attributes. Scenarios were first presented in a curative setting then in a palliative setting. Efficacy, tolerability and expected adherence had two modalities (good versus moderate) and route of administration had three modalities (intravenous (€286–379/session), oral with the current tariff (€28/consultation), oral with a hypothetical tariff (€114)). Efficacy was the reference criterion in choosing a treatment whatever the therapeutic goal (β : 2.114, $p < 0.0001$ in curative setting versus β : 1.063, $p < 0.0001$ in palliative setting). The oral route of administration was important but only in a palliative setting (β : 0.612, $p = 0.035$, and β : 0.506, $p < 0.0001$ for the current and hypothetical tariff, respectively). Removing the efficacy attribute from logistic regression model, tolerability (β : 1.228, $p = 0.0001$) and expected adherence (β : 1.223, $p = 0.0001$) were influent in curative setting while the route of administration was still predominant in palliative setting (β : 0.431, $p < 0.0001$). Results suggest that economic considerations as well as therapeutic efficacy play a significant role in choosing a treatment. Preference for oral chemotherapy with a hypothetical tariff for a patient support programme should be considered for the development of therapeutic education and healthcare coordination, currently not taken into account in the tariff of oral chemotherapy.

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doi:10.1016/j.ejca.2011.09.019

1. Introduction

The development of oral anticancer drugs has had a major impact on classical cancer treatment pattern. Although guidelines recommend that treatments be chosen on the basis of efficacy and tolerability criteria, other factors, including optimising adherence, monitoring adverse side-effects, setting stage-specific treatment goals, improvement of quality of life, selecting eligible patients for oral treatments and tariff issues may also influence the medical decision-making process.^{1–7}

When taking oral anticancer drugs, patients can receive their treatment at home rather than at hospital and previous studies demonstrated that, assuming equivalent efficacy, oral chemotherapy will be preferred to intravenous chemotherapy by patients with cancer.^{1,5} On the other hand, among clinicians, the prescription of oral chemotherapy is still controversial. Despite the increased number of oral treatments that have been developed, intravenous chemotherapy still seems to be considered as the gold standard by many clinicians. This may be explained in part by the current French reimbursement system. Hospitals performing intravenous chemotherapy are reimbursed by the National Health Insurance on the basis of inpatient and outpatient hospital sessions, whereas the prescription of oral chemotherapy is mainly reimbursed on the basis of specialist consultation fees. Moreover, education and healthcare coordination required for oral chemotherapy are additional resources currently not taken into account in reimbursement tariffs and this may influence the prescription of oral chemotherapy. Reimbursement for oral chemotherapy is also an issue in the United States where it is excluded from the hospital insurance provided by Medicare (Medicare Part A). Patients who wish to receive the reimbursement of oral chemotherapy must subscribe to the additional Medicare Part B.^{8,9} In this context, a US study demonstrated that health care providers who received more reimbursement prescribed more costly chemotherapy regimens for metastatic cancers.³ This highlights the influence of the economic constraint on treatment choice.

Paradoxically, few published studies have investigated physicians' preferences^{6,10–12} and most of the Discrete Choice Experiments (DCE) are conducted from the patient's perspective. The objectives of this study were: (i) to determine the relative importance of factors influencing the prescription of chemotherapy, (ii) to analyse the influence of the therapeutic goal (curative or palliative) on physicians' preferences, (iii) to determine if a higher hospital tariff for oral chemotherapy would be taken into consideration in therapeutic decisions.

In this study, *chemotherapy* was used as a generic term to describe all anticancer drugs (i.e. cytotoxic chemotherapy and targeted therapies).

2. Material and methods

2.1. Study population

Participants were selected from an exhaustive national database (CEGEDIM) that lists all physicians in France. Data on physician's age, gender, place of practice and geographical

origin are documented in this database. Only participants qualified in oncology were selected namely oncologists, haematologists and other specialists qualified in oncology (radio-oncologists). We included medical specialties for which the disease can be treated with oral and intravenous chemotherapy and for which we assumed that a preference could thus be expressed (gastroenterologists, pneumologists).

2.2. Recruitment of participants and data collection

The study was carried out between November 2010 and January 2011. A letter introducing the aim of the study and a participation agreement with a prepaid return envelope were mailed to all eligible physicians ($n = 3277$). One reminder by fax, e-mail or telephone and one by mail were sent when necessary. Participants were asked to complete an online questionnaire.

2.3. The Discrete Choice Experiment questionnaire

Originally applied in social and economic research, Discrete Choice Experiments have recently been applied to medical issues in order to determine respondents' preferences for different healthcare interventions. Hypothetical scenarios are presented to respondents who are asked to choose between two or more options. Options are defined by specific attributes such as route of administration or cost with different modalities (for example, injection or tablet for the route of administration). The relative importance given to the proposed attributes can thus be determined and the trade-off that respondents make between these attributes and modalities is quantified.

2.3.1. Selection of attributes and modalities

Attributes and modalities were selected from published literature and their relevance reviewed by experts.^{13–15} All factors which may influence the therapeutic decision in oncology were identified from a non-systematic literature review and classified into three groups, namely those relating to patient characteristics, those relating to disease characteristics and those relating to treatment characteristics. The list was presented to clinicians through semi-directive interviews to validate the relevance of items selected, to ensure that important factors had not been overlooked. Finally, only attributes relating to treatment characteristics were included in the questionnaire in accordance with the methodological literature.¹⁵ These were efficacy, tolerability, expected adherence, route and tariff of administration. The first three attributes (efficacy, tolerability and expected adherence) had two modalities (good versus moderate) whereas the route and tariff of administration had three modalities: (i) intravenous (€286–379 per session in private and public hospital, respectively), (ii) oral with the current tariff (€28 per consultation) and (iii) oral with a hypothetical higher tariff (€114). The hypothetical tariff was included in order to analyse the sensitivity of respondents to a higher tariff when prescribing oral chemotherapy. This tariff was based on consulting fees adjusted for the longer consultation time needed for prescribing oral chemotherapy (€31 instead of €28), one initial nursing

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