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BRIEF RESEARCH ARTICLE

Optimization of oral chemotherapy in outpatient clinics in Spain: results from a survey of the Spanish Society of Medical Oncology (SEOM)

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Abstract

Purpose To determine the current management of oral and intravenous chemotherapy (OC and IVC) in outpatient clinics of Oncology Departments in Spain to detect opportunities for improvement.

Materials and methods The Spanish Society of Medical Oncology designed a questionnaire specifically for Heads of Oncology Department: 142 were invited and 52 responded.

Results In most centers, the waiting time (69.7%) and time at the outpatient clinic (84.8%) was shorter for patients receiving OC compared to those receiving IVC. The time spent at the outpatient clinic by the patients having OC was approximately 30 min (88.5%). In addition, the time expended by the oncologist with each patient was shorter when they were treated with OC in 21.2% of cases.

Conclusions Patients' waiting times and individual dedication of oncologists might be reduced by administering OC, and general management might be improved. This should be considered when planning therapies if OC is an option.

Keywords Survey · Oral chemotherapy · Intravenous chemotherapy · Outpatient clinic

Introduction

Cancer patients often receive multiple chemotherapy treatments for extended periods of time. Services such as blood tests, physical examinations, drug preparation, and chemotherapy administration, may be performed in facilities such as outpatient clinics. Treatment at the outpatient clinics is considered to improve the quality of life of the patients, relieving the number of visits to the hospital, and decreasing health-care expenditure [1].

In 2015, the Spanish Society for Medical Oncology (SEOM) created a task force aimed at assessing the quality of care provided at Spanish outpatient clinics. In a recently published study [2], the SEOM task force reported the key importance of oncology outpatient clinics in the management of cancer patients. Due to their critical role, visits to the oncology outpatient clinics have exponentially increased in recent years, requiring further investment from the Spanish health authorities [3–6]. Oral chemotherapy is of most interest in some patient subgroups; the International Society of Geriatric Oncology has written a positioning document supporting the use of oral formulation whenever possible in elderly patients [7].

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Cancer patients mainly receive intravenous chemotherapy (IVC), but several studies have demonstrated the preference of patients for oral therapy (OC) [8–10]. Various anticancer drugs available for intravenous administration have approved oral formulations, as is the case of capecitabine, vinorelbine and etoposide [11–13]. Regimens using OC are perceived to be less toxic than intravenous agents, and their use has been advocated even in patients of advanced age [7]. Also, OC provides the convenience of self-medication, and some studies have concluded that its use may be a strategy contributing to optimization of healthcare services, cost savings (e.g., decreasing the incidence of adverse drug reactions, drug interactions, and medication errors over time) and social return of investment [14–16].

The SEOM task force defined a questionnaire to assess the routes used for chemotherapy administration in the Spanish outpatient clinics and the time required for treatment. We report here the Spanish oncologists' viewpoints on chemotherapy formulations and how they affect the time cancer patients spend in the Spanish outpatient clinics.

Methods

A self-administered questionnaire was developed (Supplementary Material). It comprised three sections including a total of 23 items related to the management of time and resources in relation to the use of OC vs. IVC in oncology patients attended in the outpatient clinic. Topics were as follows:

1. Oncologist's opinion on the most favorable administration route in each of the settings described.
2. Oncologist's opinion on the most favorable scheme for OC in each of the clinical paradigms described.
3. Oncologist's opinion regarding the time invested in the various steps of care for the patient in treatment.

The questionnaire was distributed via e-mail to 141 heads of Oncology Department of several Spanish hospitals and SEOM members. The sample size was estimated considering a maximum margin error of 10% in a confidence level of 90%. Therefore, the minimum sample size required was 46. Consent to participate was indicated by the completion and return of the questionnaire. All answers were entered into a computerized database, and an independent investigator who was unrelated to the data collection analyzed the anonymized data. Those questions that were left blank or had two simultaneous answers were considered invalid. The survey was conducted between June 2016 and September 2016. Descriptive statistics were used to examine the variables.

Results

Characteristics of the participants and centers surveyed

From the 141 Heads of Oncology surveyed, 52 responded to the questionnaire (36.6%), and all participants answered 100% of the questions. The median population attended per responding center was 300,000 people [4–2.5 million]. The median number of therapy chairs in the outpatient clinic was 20 [6–60], and the median number of hospital beds for the oncology service was 6 [0–1300]. The percentage of daily occupancy in the outpatient clinic was $\geq$ 90% for most centers (71.2%). In the month prior to the survey, the median of IVC treatments was 890, while a median of 100 OC treatments were administered in the outpatient clinic during the previous month.

Opinion on most favorable administration route

In all of the centers surveyed, OC was deemed the most convenient route of administration during radiotherapy concomitance in patients with locally advanced-stage lung or colon cancer. In addition, 92.3% of the respondents considered that the oral route was also better adapted to the logistics of concomitant radiotherapy treatment (Table 1). Both oral capecitabine and oral vinorelbine were reported to decrease the number of visits to the outpatient clinic (90.4% respondents in both cases) and difficulties placing the access for intravenous treatment were reported as reason against using fluorouracil and intravenous vinorelbine (76.9% and 73.1%, respectively) (Table 1).

Management according to administration route

Almost all participants polled (94.2%) considered the oral route as the best-tolerated form of administration and 30.8% reported that patients on OC did not visit the outpatient clinic. Of those that did at some point, the reasons were to collect medication (61.1%) or blood tests (86.1%). In most clinics, most patients on OC were taking their treatment at home (73.1% of responses). Most respondents (80.8%) declared that the use of OC had improved the pharmaceutical management of the patients in their centers. In most centers (84.8%), service heads considered that patients receiving oral chemotherapy need a shorter stay than those receiving intravenous treatment.

The estimated number of visits, stay duration in the outpatient clinic and time dedicated by healthcare providers, comparing OC and IVC, are summarized in Table 2.

Table 1 Opinion on the most favorable administration route and preferred drug in each paradigm

Preferred administration route…	Intravenous (%)	Oral (%)
…in patients with lung or colon cancer at locally advanced-stage with radiotherapy	0	100
…as better adapted for logistic reasons in patients with radiotherapy	7.7	92.3
Assuming that efficacy in OC and IVC is equal, what are the reasons to use capecitabine instead of fluorouracyl?	No (%)	Yes (%)
Lower toxicity of capecitabine	76.9	23.1
Lower price of fluorouracyl	90.4	9.6
Difficulty of implanting a venous access for fluorouracyl	23.1	76.9
Reduction of visits to the outpatient clinic	9.6	90.4
Assuming that efficacy of OC and IVC is equal, what are the reasons to use oral vinorelbine instead of its IV formulation?	No (%)	Yes (%)
Lower toxicity of oral formulation	76.9	23.1
Lower price of intravenous formulation	73.1	26.9
Difficulty of implanting a venous access for intravenous medication	26.9	73.1
Reduction of visits to the outpatient clinic	9.6	90.4

IVC intravenous chemotherapy, *OC* oral chemotherapy

Table 2 Patient management according to administration route

When the patient receives OC instead of IVC…	Less/shorter (%)	Equal (%)	More/longer (%)
The number of visits per cycle is…	51.9	44.2	3.8
The waiting time at the clinic is…	69.7	27.3	3.0
The time spent at the clinic is…	84.8	15.2	0
The time spent at the physician's office is…	21.2	76.9	1.9
The time of nurse dedication is…	46.2	51.9	1.9
The time invested by physician is…	15.4	78.8	5.8
The number of visits per patient is…	32.7	67.3	0
The number of blood tests per patient is…	25.0	75.0	0

Time and staff requirements according to administration route

In a clear majority of centers (88.5%) the time spent at the outpatient clinic by the patient receiving OC was less than or equal to 30 min. In contrast, only one of them reported that the time spent by the patient receiving IVC in his/her center was 30 min. Most reported that patients receiving IVC spent 3 to 4 h in the clinic (Fig. 1). This was related to the time spent at the hospital, with most patients receiving IVC spending over 3 h (90.4%), and 80.8% of patients receiving OC spending less than 3 h (Fig. 2). The participants reported that 75% of OC patients picking their medication at the hospital pharmacy invested less than 30 min in doing so.

Regarding the physician consultation time, in 21.2% of centers, the time invested by the oncologist with each patient was lower when they were treated with OC than when treated with IVC. In 76.9% of centers, the oncologist spent the same amount of time regardless of the route of administration. Accordingly, when inquiring about the nursing consultation time, in 46.2% of the centers the time invested by the nurse with each patient was lower for those patients on OC. Moreover, the number of visits to the oncology outpatient clinic was similar for both treatments in most centers (67.3%) or lower for those patients on OC (32.7%).

Discussion

Cancer treatment has shifted from an inpatient to an outpatient setting thanks to the advancements in supportive care measures [17, 18]. The treatment of cancer may require numerous visits over the course of months or years, and this results in higher workloads for the oncologic outpatient clinic. In recent years, the saturation of outpatient clinics in Spain has become a major problem for health providers

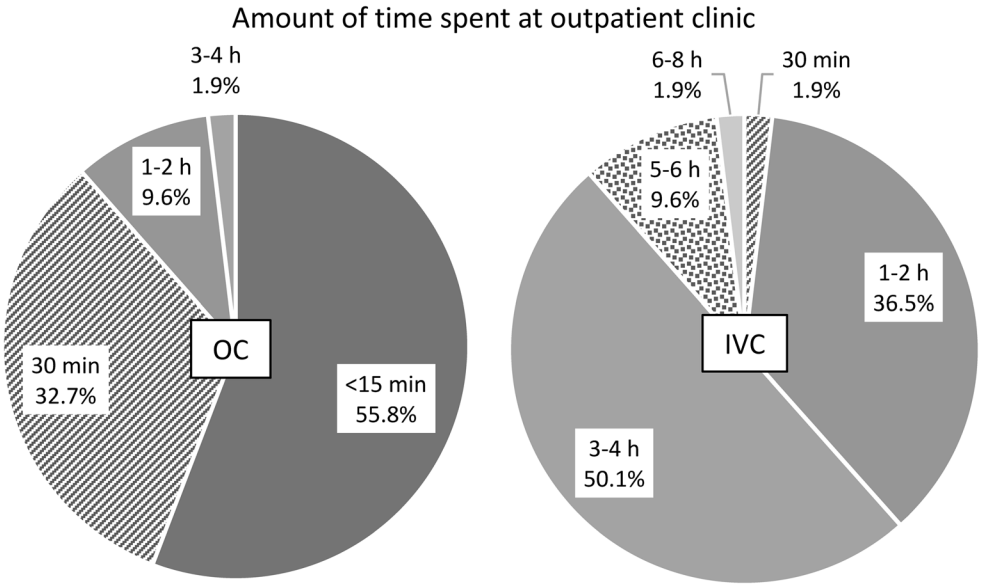

Fig. 1 Amount of time spent by the patient at the outpatient clinic according to route for chemotherapy. Percentage of participants indicating each time range

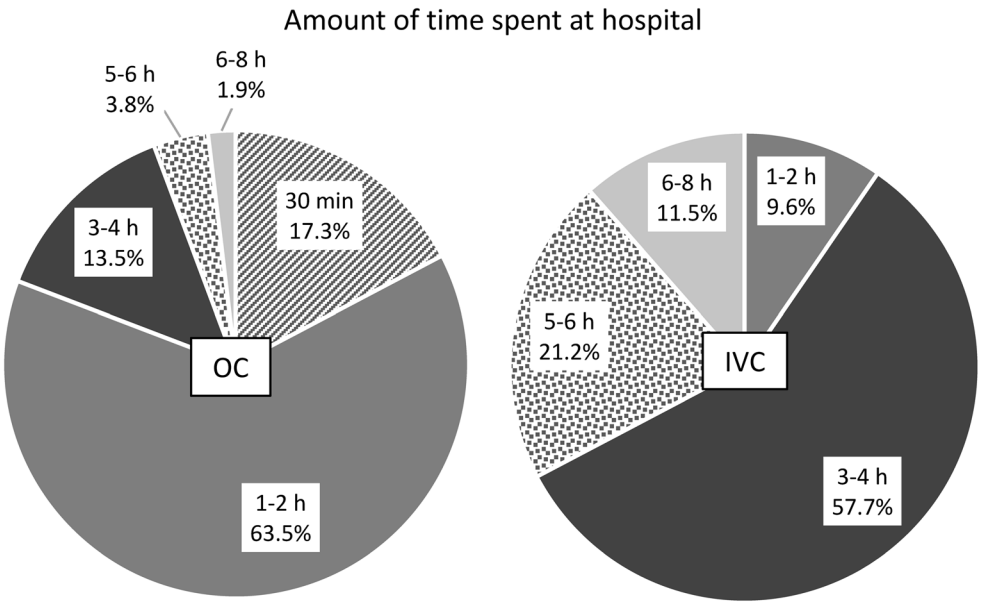

Fig. 2 Amount of time spent by the patient at hospital according to route for chemotherapy. Percentage of participants indicating each time range

especially in the present economic situation. Thus, the health authorities need to take measures to improve outpatients' management, among other solutions.

This study examined the Spanish outpatient clinics use of oral chemotherapy administration, its convenience, the time the patients spend at the clinic and the general flows of the outpatient clinics.

The questionnaire showed that, in the experience of the responding heads or coordinators of oncology units, OC is generally well tolerated (94.2%) and was associated with a decrease in the number of visits (51.9%), and the amount of time spent at the clinic (≤ 30 min in 88.5% of cases). OC also provided some advantages over IVC, such as the possibility of home treatment (73.1% of respondents) and being more convenient in case of concomitant radiotherapy (92.3%).

It has been reported that reducing the number of clinic visits may improve patient care and exert a positive effect on patients, by improving their social and financial well-being, and may also increase patient's adherence to his/her treatment [19]. Additionally, other studies suggest that oral administration may reduce healthcare cost through a shift towards outpatient clinic and home care management [16, 20], which seems to be the experience of the participants. Regarding economical costs and workload for the system, a reduction in the time required in the center and the dedication of healthcare professionals to individual patients will have undoubtedly a positive impact in patient flow.

In conclusion, this study supports the perceived benefits of the use of OC for patient management in the outpatient clinic, showing that patient waiting times can be reduced in opinion of the specialists managing the units. This information should be considered when planning treatments when oral route for chemotherapy is an option.

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Compliance with ethical standards

Conflict of interest AS has received an advisor honorarium from Roche Pharma, Astra Zeneca, Pierre-Fabre, Amgen and Clovis. JDC has received an advisor honorarium from Roche Pharma, Pfizer, Pierre-Fabre and Boehriger-Mannheim. ML has received an advisor honorarium from Roche Phrama, Astra Zeneca, Pierre-Fabre, Janssen, Boehringer-Mannheim and BMS. RV has received an advisor honorarium from Roche Pharma, Amgen and Sanofi. JM and EM have nothing to disclose.

Ethical approval This article does not contain any studies with human participants performed by any of the authors.

Informed consent For this type of study, formal consent is not required.

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