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Oral Anticancer Drugs in Community Pharmacies in Morocco: Assessment of the Knowledge, Practices and Training Needs of Community Pharmacy Professionals

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Introduction

Therapeutic advances in oncology have led to the development of many anticancer drugs administered orally. These treatments now play an important role in the management of several cancers, notably owing to the possibility of home administration and the reduction in trips to hospital facilities. However, the shift from administration mainly supervised in a hospital setting to medication taken by the patient at home changes the responsibilities for monitoring and ensuring the safety of treatment [1,2]. Unlike chemotherapy administered in hospital, oral anticancer therapies rely largely on the patient's ability to follow the prescribed administration instructions. Treatment regimens can be complex and vary according to the drug, the dose, the treatment cycles and the individual characteristics of the patient. Drug interactions, adverse effects and adherence difficulties therefore represent major issues for treatment safety and efficacy [2,3]. Patient therapeutic education is, in this context, an essential component of care. It aims to enable patients to acquire the skills needed to understand their treatment, follow the administration instructions, recognize warning signs and respond appropriately when an adverse effect occurs. Several studies have underlined the importance of structured support and regular follow-up in promoting adherence to oral anticancer treatments [3,4].

The community pharmacist has a particular position in this system. Accessible and regularly consulted by patients, the pharmacist can contribute to the patient's understanding of the treatment, to the verification of administration instructions, to the identification of potential drug interactions and to the detection of adverse effects. The pharmacist can also refer the patient to the medical team when the situation requires specialist assessment. The quality of this intervention nevertheless depends on the pharmacist's knowledge of oncology, on the availability of suitable documentary resources and on the quality of exchanges with hospital professionals [5,6]. Several international surveys have revealed gaps in community pharmacists' training regarding oral anticancer drugs. O'Bryant and Crandell notably reported a mean correct-response rate of 49.7% on questions assessing pharmacists' knowledge of these treatments [5]. In Canada, Abbott et al. also showed that only a limited proportion of pharmacists felt sufficiently prepared to educate patients receiving oral anticancer drugs [6]. In Morocco, the available data also point to difficulties in the organization and follow-up of oral anticancer treatments. A survey of Moroccan medical oncologists notably revealed a lack of specific training in the therapeutic education of the patients concerned [7]. However, data directly addressing the knowledge, practices and needs of community pharmacy teams remain limited.

In this context, the aim of our study was to assess the knowledge and the degree of involvement of pharmacy professionals working in community pharmacies in Morocco in the management of patients receiving oral anticancer therapies, to identify the difficulties encountered in daily practice, and to determine training and support tool needs.

Materials and Methods

Study Type and Period

This was a descriptive cross-sectional study conducted between April and June 2023. It was based on a questionnaire survey of professionals working in community pharmacies in Morocco.

Study Population

The target population comprised titular pharmacists, assistant pharmacists and pharmacy technicians working in pharmacies dispensing oral anticancer treatments. The inclusion criterion was working in a pharmacy dispensing oral anticancer treatments. Professionals working in pharmacies that did not dispense these treatments were not eligible for the survey. Fifteen pharmacies meeting the inclusion criterion were approached in the Casablanca and Rabat regions. Seven of them agreed to participate, including three in Casablanca and four in Rabat. In addition, the questionnaire was distributed electronically to pharmacy professionals. In total, 21 responses were collected and retained for analysis.

Data Collection Tool

Data were collected using an electronic questionnaire developed on Google Forms. It comprised 20 questions divided into five sections:

- General and professional characteristics of respondents;
- Professionals' knowledge of oral anticancer treatments;
- The relationship between pharmacy professionals and patients;
- Knowledge of the patients' hospital care pathway;
- Professionals' needs and expectations regarding training and support.

The questions notably covered the frequency of encounters with patients with cancer, the self-assessed level of knowledge of oral anticancer treatments, awareness of available documentary resources, the adverse effects reported by patients, communication difficulties and problems encountered during dispensing.

Data Analysis

Data underwent descriptive analysis based on the calculation of frequencies and percentages. When the number of responses varied between questions or when the exact denominator could not be determined with certainty, results were presented as counts. No inferential statistical analysis was performed.

Results

Characteristics of Respondents

In total, 21 responses were retained. Among the participants, 14 were community pharmacists (66.7%), three were assistant pharmacists (14.3%) and four were pharmacy technicians (19%). Most respondents worked in an urban pharmacy (18/21; 85.7%). Two responses came from commercial areas (9.5%) and only one from a rural area (4.8%). Regarding professional experience, nine respondents had less than five years of experience (42.9%), five had between five and fifteen years (23.8%) and seven had more than fifteen years (33.3%) (Table 1).

Table 1: Characteristics of respondents (N = 21).

Characteristic	Category	n	%
Profession	Titular pharmacist	14	66.7
	Assistant pharmacist	3	14.3
	Pharmacy technician	4	19
Pharmacy location	Urban	18	85.7
	Commercial area	2	9.5
	Rural	1	4.8
Experience in community pharmacy	< 5 years	9	42.9
	5 to 15 years	5	23.8
	> 15 years	7	33.3

Frequency Of Encounters with Patients with Cancer

The frequency of encounters with patients with cancer in the pharmacy varied. Five professionals reported seeing these patients daily, six saw them weekly, nine monthly and only one annually. In addition, 17 of 21 respondents (80%) indicated that the patients concerned were generally regular customers of their pharmacy.

Level Of Knowledge of Oral Anticancer Treatments

Most participants felt that their knowledge of anticancer treatments was lower than their knowledge of other common chronic diseases, such as diabetes, asthma or cardiovascular disease. Thus, 16 of 21 respondents (76.2%) rated their level of knowledge as lower, whereas one rated it as similar and four rated it as higher. Descriptive analysis by professional experience showed that six of the nine professionals with less than five years of experience rated their knowledge as lower than for other diseases. This proportion was six out of seven among professionals with more than fifteen years of experience. These results, however, do not allow any conclusion to be drawn regarding a statistical association between experience and level of knowledge. Regarding the documentary resources available on the Internet, ten of 21 respondents (47.6%) reported being aware of the information sheets on oncology treatments and the management of their adverse effects. Of these ten respondents, eight reported consulting them occasionally and two reported having looked for them only once.

Knowledge Of Supportive Care and Adverse Effects

Regarding supportive care, 11 respondents rated their knowledge at 5 out of 10 or higher. None gave a score above 8. The adverse effects most frequently reported by patients to pharmacy professionals were nausea, vomiting and loss of appetite, mentioned by 19 respondents. They were followed by diarrhea and abdominal pain, cited by 16 respondents, then by skin rash and dryness, reported by nine respondents. Mouth inflammation was mentioned by five respondents. Signs of infection were reported by four professionals and cough or breathing difficulties by only one. No respondent indicated unusual bleeding or bruising among the most frequently reported effects. Regarding the management of adverse effects in the pharmacy, 90% of professionals considered that general advice on a healthy lifestyle was a feasible means of management. Nutritional advice was also considered useful by 75% of respondents. By contrast, recommending dermocosmetic products, detecting and managing drug interactions, and supportive care were perceived as more difficult, or even impossible, to implement.

Relationship With Patients and Communication

Regarding the relationship with patients receiving oral anticancer therapies, three respondents reported regularly encountering difficulties in establishing dialogue, 13 reported occasional difficulties and five reported none. Asked about the usefulness of pharmaceutical interviews in facilitating this communication, 57.1% of respondents did not consider that implementing them would necessarily facilitate dialogue, whereas 42.9% were in favor. In addition, 19 professionals were in favor of creating a patient pharmaceutical record to improve treatment follow-up.

Knowledge Of the Hospital Care Pathway and Dispensing Difficulties

The level of knowledge of the patients' hospital care pathway was rated at a mean of 4.95 out of 10. Eleven of 21 respondents (52.4%) reported encountering prescription-related difficulties when dispensing oral anticancer treatments. Among the professionals who reported these difficulties, nine of eleven (81.8%) indicated that they contacted the prescriber or oncologist to obtain clarification. Most of these respondents considered this process time-consuming and complex.

Needs Expressed by Professionals

Participants expressed several needs to improve their daily practice and their support of patients receiving oral anticancer drugs. The main expectations concerned the provision of advice sheets intended for professionals and patients, additional training on oncology treatments and diseases, and the development of psychology and communication skills for dealing with patients with cancer.

Discussion

This descriptive survey highlights several difficulties encountered by pharmacy professionals in the management of patients receiving oral anticancer therapies. The main findings concern the level of knowledge judged insufficient by a majority of respondents, difficulties in managing adverse effects, obstacles to communication with patients and the limits of the community–hospital liaison. These observations are consistent with several international studies underlining the difficulties faced by community pharmacists as their role evolves in the care of patients receiving oral anticancer drugs [5,6].

Knowledge of Oral Anticancer Drugs Remains Insufficient

The most striking result of our survey is that 76.2% of respondents rated their knowledge of anticancer treatments as lower than their knowledge of other common chronic diseases. This perception reflects a difficulty in feeling sufficiently prepared to support patients receiving treatments whose administration modalities and toxicity profiles can be complex. These results are consistent with those reported by O'Bryant and Crandell, who assessed the knowledge of 243 community pharmacists in the United States. The authors found a mean correct-response rate of 49.7%. Knowledge was particularly limited regarding adverse effects, for which the correct-response rate was 45%, and special handling precautions, for which it was 25% [5]. Similarly, the Canadian survey by Abbott et al. of 352 pharmacists showed that only 13.6% of respondents felt they had received sufficient initial training in oncology. Moreover, only 24% knew the usual doses of oral anticancer drugs and 9% felt comfortable educating patients about these treatments [6]. The comparison between these studies must nevertheless be interpreted with caution, because the assessment tools and the populations surveyed are not identical. Our survey relied essentially on self-assessment of knowledge, whereas the American and Canadian studies included questions assessing participants' knowledge more directly. The results are therefore not strictly comparable. They nevertheless point to a common problem: the difficulty for pharmacy professionals in mastering all aspects of oral anticancer drugs.

In our survey, professionals with more than fifteen years of experience were not proportionally more likely to consider their knowledge satisfactory. Six of the seven respondents in this category, on the contrary, felt that their knowledge was lower than for other diseases. This finding suggests that professional experience does not, on its own, guarantee sufficient mastery of this specialized therapeutic area. It should nevertheless be considered a descriptive observation, given the small sample size and the absence of a statistical test. These results underline the value of strengthening initial and continuing education in oncology, notably regarding administration modalities, drug interactions, specific toxicities and the appropriate action to take when an adverse effect occurs.

Variable Exposure to Patients and a Need for Continuing Education

The frequency of encounters with patients with cancer varied in our survey. While some professionals reported seeing these patients daily, others saw them only weekly or monthly. Ten of 21 respondents saw these patients once a month or less, which may limit regular exposure to this category of treatments and familiarity with their particularities. O'Bryant and Crandell observed that pharmacists who dispensed a larger number of oral anticancer prescriptions obtained better knowledge scores [5]. However, the authors found no significant variation in scores according to years of experience or the number of continuing education courses attended. These results suggest that practical exposure to these treatments may play a role in skill acquisition, without, however, replacing structured training. The Canadian survey by Abbott et al. also showed that only about 19% of respondents had taken part in continuing education in oncology during the two years preceding the survey [6]. These data reinforce the value of offering training that is accessible and adapted to the constraints of professionals working in community pharmacies. In Morocco, Kharmoum et al. surveyed medical oncologists about their capecitabine prescribing practices. The authors reported that 87.9% of the oncologists surveyed had not received specific training in the therapeutic education of patients receiving oral anticancer drugs [7].

Although this study concerns oncologists rather than community pharmacists, it shows that training needs are not limited to a single professional group. Skills strengthening could thus form part of a multidisciplinary approach involving the different actors in the care pathway.

Managing Adverse Effects: A Major Issue in Pharmaceutical Care

Nausea, vomiting and loss of appetite were the adverse effects most frequently reported by patients to the professionals in our survey. Diarrhea and abdominal pain ranked second, followed by skin manifestations and dryness. These results underline the importance of the pharmacist's ability to recognize the toxicities frequently associated with oral anticancer treatments. However, the diversity of drugs and of their toxicity profiles requires knowledge adapted to each treatment. The manifestations reported by patients should not be considered solely as symptoms to be relieved in the pharmacy: some may be warning signs requiring rapid referral to the medical team. The literature emphasizes that the education of patients receiving oral anticancer drugs should notably cover administration modalities, recognition of adverse effects, drug interactions and the measures to take in case of toxicity [8]. Structured pharmaceutical interview tools have thus been proposed to standardize the information given to patients and to secure follow-up [8]. In our survey, respondents seemed more comfortable with general lifestyle advice and nutritional advice than with managing drug interactions or supportive care. This difference may reflect a difficulty in intervening in situations requiring more specialized clinical expertise or coordination with other health professionals.

It therefore appears necessary to provide community pharmacy teams with practical sheets adapted to the different drugs, presenting the main adverse effects, the signs of severity, the advice that can be given in the pharmacy and the situations requiring contact with the medical team.

The Pharmacist–Patient Relationship and the Role of Therapeutic Education

The community pharmacist's proximity to patients is an important advantage in the follow-up of oral anticancer treatments. In our survey, 17 of 21 respondents indicated that patients with cancer were generally regular customers of their pharmacy. This regular relationship may help identify difficulties encountered during treatment and facilitate exchanges. However, 16 of 21 professionals reported regular or occasional difficulties in establishing dialogue with patients. This result shows that geographic proximity and frequency of contact do not necessarily guarantee appropriate educational support. Therapeutic education is not limited to transmitting information. It also involves identifying the patient's needs, assessing their understanding of the treatment, detecting barriers to adherence and encouraging their involvement in care. The recommendations on adherence to oral anticancer treatments notably emphasize the importance of initial education, regular follow-up and interventions adapted to individual difficulties [4]. Implementing pharmaceutical interviews could be a way to structure this support. However, in our survey, 57.1% of respondents did not think that these interviews would necessarily facilitate dialogue. This reservation may reflect organizational constraints, a lack of training in conducting interviews, or uncertainty about the practical modalities of implementation. It would therefore be relevant to accompany the development of pharmaceutical interviews with simple tools, standardized materials and training in communication with patients with cancer.

Dispensing Difficulties and the Limits of the Community–Hospital Liaison

More than half of the respondents in our survey (52.4%) reported prescription-related difficulties when dispensing oral anticancer drugs. Of these, 81.8% indicated that they contacted the prescriber or oncologist for clarification. Most, however, considered this process time-consuming and complex. These difficulties are particularly important in the context of oral anticancer drugs, for which securing dispensing requires a precise understanding of the indication, the dose, the treatment regimen and any dose adjustments. Our survey results are consistent with those of Cavallier et al., who studied the liaison between community pharmacies and hospitals in the Aveyron département, France. Among the 59 pharmacies that responded to their survey, only 50% received documents supplementing the prescription. In addition, 44% did not consult the shared medical

record and 46% of respondents felt they were poorly able, or unable, to properly validate the indication of the treatment [9]. These results illustrate the difficulties in transmitting information between hospital structures and community pharmacies. They also show that the existence of communication tools does not necessarily guarantee their effective use. In our survey, the mean level of knowledge of the hospital care pathway was 4.95 out of 10. This value suggests a relatively limited perceived knowledge of the care pathway, which may complicate the community pharmacist's intervention in the continuity of care. Improving the community–hospital liaison is thus a priority area.

Systematic transmission of information useful for dispensing, the establishment of clearly defined contact procedures and the development of a shared pharmaceutical record could help reduce the difficulties encountered by professionals and improve patient safety.

Tools And Prospects for Improving Community Pharmacy Practice

The results of our survey highlight several needs expressed by professionals, notably regarding documentation, training and patient follow-up. Providing advice sheets intended for professionals and patients could facilitate the transmission of reliable and consistent information. These documents could specify administration modalities, precautions for use, potential interactions, the main adverse effects and the signs requiring medical referral. The creation of a patient pharmaceutical record was also viewed favorably by a majority of respondents. Such a tool could centralize prescribed treatments, concomitant medications, any drug-related problems and information useful for follow-up. It could thus help improve the detection of interactions and strengthen continuity of care. The literature supports a structured approach to supporting patients receiving oral anticancer drugs. The Oncology Nursing Society guidelines notably emphasize patient education, regular assessment of adherence, proactive follow-up and individualized support [4]. These principles can be adapted to community pharmacy practice, in coordination with hospital teams. Finally, professional training should include not only pharmacological and clinical knowledge but also the interpersonal and psychological skills needed to support patients with cancer.

Study Limitations

Our study has several limitations that should be taken into account when interpreting the results. First, the sample was limited to 21 respondents, which reduces the representativeness of the results and does not allow the observations to be generalized to all pharmacy professionals in Morocco. Second, only seven of the fifteen pharmacies approached agreed to participate. This voluntary participation may introduce selection bias and non-response bias, as the professionals who agreed to respond may have a particular interest in the topic studied. Third, the data were based on self-reports and self-assessments. The level of knowledge reported by participants therefore does not necessarily correspond to an objective measure of their skills. Finally, the analysis was essentially descriptive and did not include statistical tests to study associations between professional characteristics and the responses obtained. Despite these limitations, this survey provides exploratory evidence on the difficulties and needs of pharmacy professionals in Morocco regarding the support of patients receiving oral anticancer therapies.

Conclusion

The development of oral anticancer therapies reinforces the role of the community pharmacist in securing treatments and in the therapeutic education of patients. Owing to their proximity to patients and their accessibility, pharmacists are important contacts who can help patients understand their treatment, prevent adverse effects and maintain good adherence. Our survey highlights a feeling of insufficient knowledge among a majority of the professionals surveyed, as well as difficulties in managing adverse effects, in communicating with patients and in exchanges with hospital prescribers. These findings underline the need to strengthen initial and continuing education in oncology, to develop educational materials adapted to the different drugs and to improve the means of communication between community pharmacies and hospitals. The implementation of pharmaceutical follow-up tools, notably a patient record, combined with practical sheets and structured pharmaceutical interviews, could help improve the quality of support and the safety of patients receiving oral anticancer therapies. Further studies, conducted on a larger sample and including the perspectives of patients and of hospital professionals, would be needed to better define the modalities of community pharmacist intervention in this care pathway.

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