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Brief report

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Impact of the COVID-19 pandemic: Community and hospital shared pharmaceutical care model. Satisfaction and acceptability of patients with HIV infection on antiretroviral treatment

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ABSTRACT

Background. The health crisis due to the COVID-19 pandemic is a challenge in the dispensing of outpatient hospital medication (OHM). Models of Antiretroviral Therapy (ART) based on community pharmacy support (ARTCP) have proven to be successful. The aim was to evaluate the degree of satisfaction, acceptability and limitations of the implementation of ARTCP, in the context of a pandemic, in our environment.

Methods. Descriptive cross-sectional study carried out in a Barcelona hospital, during the months of July-November 2020. A telephone survey was carried out via a questionnaire on the quality dimensions of the model (degree of satisfaction, acceptability) and associated inconveniences. Data collected: demographics, antiretroviral treatment (ART), concomitant medication, drug interactions (DDIs), CD4 lymphocyte count and plasma viraemia. Data analysis included descriptive statistics.

Results. A total of 533 (78.0%) HIV patients receiving ART were included. 71.9% (383/533) of these patients were very satisfied and 76.2% preferred attending the community pharmacy rather than the hospital. The mean satisfaction rating was 9.3 (DS: 1.4). The benefits reported were: 1) proximity to home (406: 76.1%); 2) lower risk of contagion of COVID-19 (318: 59.7%); 3) shorter waiting time (201: 37.1%); 4) time flexibility (104: 19.5%); 5) reduction of financial expenses (35: 6.57%). A total of 11 (2%) patients reported no benefit. Only 22.9% reported disadvantages associated with ARTCP: 1) lack of privacy (65: 12.2%); 2) lack of coordination-organization (57: 10.7%).

Conclusion. The COVID-19 pandemic has had an impact on the provision of pharmaceutical care for HIV patients. The ARTPC model has proved efficient, with patients reporting a high degree of satisfaction.

Keywords: Antiretroviral therapy, pharmaceutical care; COVID-19

Impacto de la pandemia COVID-19: Modelo de atención farmacéutica compartida comunitaria y hospitalaria. Satisfacción y aceptabilidad de pacientes con infección VIH en tratamiento antirretroviral

RESUMEN

Introducción. La crisis sanitaria por la pandemia COVID-19 plantea un desafío en la dispensación de la medicación hospitalaria de dispensación ambulatoria (MHDA). Los modelos de terapia antirretroviral basados en el apoyo de la farmacia comunitaria (TARFC) han demostrado tener éxito. El objetivo del estudio fue evaluar el grado de satisfacción, aceptabilidad y limitaciones de la implementación del TARFC, en contexto de pandemia, en nuestro entorno.

Métodos. Estudio descriptivo transversal realizado en un hospital de Barcelona, durante los meses de julio-noviembre del 2020. Se realizó una encuesta telefónica, mediante un cuestionario sobre dimensiones de calidad del modelo (grado de satisfacción, aceptabilidad) e inconvenientes asociados. Se recogieron datos: demográficos, tratamiento antirretroviral (TAR), medicación concomitante, interacciones farmacológicas (DDIs), recuento de linfocitos CD4 y viremia plasmática. El análisis de datos incluyó estadística descriptiva.

Resultados. Se incluyeron 533 pacientes VIH adherentes al TAR. El 71,9% (383/533) de pacientes estaban muy satisfechos y el 76,2% preferían acudir a la farmacia comunitaria frente a la hospitalaria. La calificación de satisfacción media fue de 9,3 (DS: 1,4). Los beneficios reportados fueron: 1) cercanía al domicilio (406: 76,1%); 2) menor riesgo de contagio

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M. E. Molas, et al.

Impact of the COVID-19 pandemic: Community and hospital shared pharmaceutical care model. Satisfaction and acceptability of patients with HIV infection on antiretroviral treatment

de COVID-19 (318: 59,7%) 3) menor tiempo de espera (201: 37,1%); 4) flexibilidad horaria (104: 19,5%); 5) reducción de gastos económicos (35: 6,57%). Un total de 11 (2%) pacientes no reportaron ningún beneficio. Únicamente el 22,9% reportaron desventajas asociadas al TARFC: 1) falta de privacidad (65:12,2%); 2) falta de coordinación-organización (57: 10,7%)

Conclusión. La pandemia de COVID-19 tiene un impacto en la prestación de atención farmacéutica al VIH. El modelo TARFC ha resultado eficiente con un elevado grado de satisfacción por parte de los pacientes.

INTRODUCTION

The COVID-19 pandemic is putting great pressure on health systems around the world [1], with important consequences for both public health, as well as the function of health structures together with the practicing of their professionals. Due to this situation, alternatives to the hospital administration of antiretroviral medication have had to be sought. In order to guarantee an adequate provision of services, as well as to promote decongestion in hospitals and combat viral spread [2], a series of measures were carried out to ensure patient access to medication. Community pharmacies are essential services authorized to continue their activity during the emergency [3], and community pharmacists are in a key position to provide priority responses to a pandemic, including the management of patients with chronic diseases [4].

Previous studies [5-7] carried out under different settings [8,9] evaluated the feasibility, acceptability and results of a differentiated model of ART dispensing based on the community pharmacy, demonstrating good clinical results (viral suppression, CD4 counts), a higher rate of adherence to ART [10] and the better acceptance of treatment by these patients.

Although the aforementioned studies have been carried out in countries with a healthcare system different from ours, as Canada and the United States, the results point towards a positive benefit derived from the inclusion of community pharmacies in the healthcare process.

In this context, CatSalut issued a resolution with the Official College of Pharmacists of Barcelona and the Hospital del Mar, in which the dispensing of OHM medication was contemplated in the non-face-to-face mode, including dispensing via community pharmacies. The present study aims to evaluate the satisfaction of HIV patients on ART in the setting of an ART dispensing model via community pharmacies, during the pandemic.

MATERIAL AND METHODS

Design and scope of the study. Patients. OHM Dispensing Circuit Through Community Pharmacies. Telematic visits. Evaluation of the satisfaction of patients adhered to the shared care model. Data collected. Statistical analysis.

RESULTS

Participants and characteristics of antiretroviral treatment. A total of 533 HIV patients were included in the study from a cohort of 683 HIV patients adhered to ART who, at the time of the study, agreed to participate in the project of shared pharmaceutical care with community pharmacies. 150 (21.9%) patients were excluded (Figure 1).

The characteristics of the patients included are summarized in Table 1. The majority (73.5%) were Caucasian and men (82.6%), the mean age was 48 years (DS: 11.9). 75.2% (401/533) of patients received triple ART regimens, 108 (20.3%) dual therapy patients and 22 (4.1%) monotherapy patients.

The antiretroviral treatment used by the 533 patients included can be summarized as 57% (304/533) received regimens based on integrase inhibitors (INI); 18.9% received regimens based on non-analog reverse transcriptase (NNRTI); 13.9% took a protease inhibitor potentiated based therapy; 86.1% of patients received nucleoside / nucleotide analog reverse transcriptase; and 10.8% other combination regimens. Triple therapy was used by 75.2 %, and mono or dual therapy by 24.4% of patients.

The co-medicated patients were 57% (304/533), with a median of 3 drugs per patient and with 16.7% of patients taking 5 or more drugs. Recreational or abuse drugs were taken by 33% of patients 33% and 6% of them for "chem-sex" purposes. Among the prescribed drugs, the most frequent were: psychotropic drugs (anxiolytics 14.3%, antidepressants 13.9%, anticonvulsants 8.1%, neuroleptics 4.5%, methadone 4.5%); anti-hypertensive (ACE inhibitors or angiotensin receptor blockers 12.1% beta blockers 5.3%, diuretics 4.7%, calcium-channel blockers 4.5%) lipid-lowering and oral antidiabetics (statins 15.2%, fibrates 5.3%, oral antidiabetics 4.3%; proton pump inhibitors 10.9% Vitamin and mineral supplements represented 24.6% of the concomitant drugs.

DDIs were detected in 109 patients (20.4%); 26 (23.4%) were considered potential weak interaction 73 (67%) potential interaction, and 10 (9%) contraindicated. In the latter, the potentiated protease inhibitor (darunavir/cobiscitat) is involved in 80% of cases with: budenoside (2 cases), quetiapine, bisoprolol, domperidone, phenitoine, midazolam, lercandipine. Rilpivirine was involved in 2 cases with: eslicarbazepine and omeprazole.

Qualitative cross-sectional survey of the new ART dispensing model. Table 2 describes the results gathered from the satisfaction questionnaire (n = 533). At the time of the survey, 49.2% (262/533) of patients had visited the community pharmacy at least 3 times to collect ART, 40.2% (214/533) 2 times, and only 6.8% (36/533) once. Most of the patients (71.9% (383/533)) were very satisfied and preferred to go to the community pharmacy to collect ART (406: 76.2%); the mean score was 9.3 (DS: 1.4) on a scale of 1 to 10 points, with 10 being the maximum satisfaction. The benefits reported by the patients were: 1) proximity to home (406: 76.1%); 2)
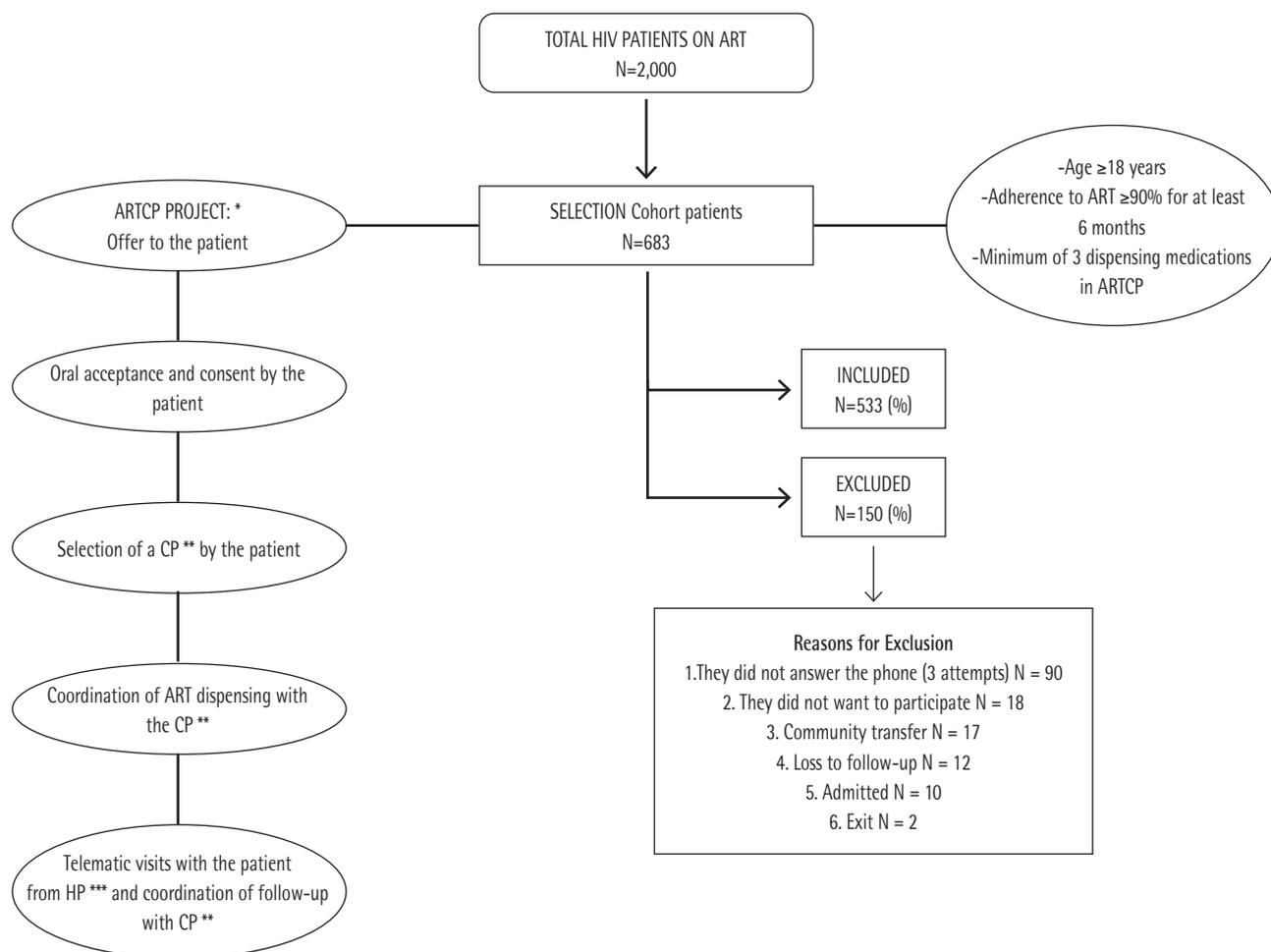
M. E. Molas, et al.

Impact of the COVID-19 pandemic: Community and hospital shared pharmaceutical care model. Satisfaction and acceptability of patients with HIV infection on antiretroviral treatment

TOTAL HIV PATIENTS ON ART
N=2,000

ARTCP PROJECT: *
Offer to the patient

SELECTION Cohort patients
N=683

-Age ≥18 years
-Adherence to ART ≥90% for at least 6 months
-Minimum of 3 dispensing medications in ARTCP

Oral acceptance and consent by the patient

INCLUDED
N=533 (%)

EXCLUDED
N=150 (%)

Selection of a CP ** by the patient

Coordination of ART dispensing with the CP **

Reasons for Exclusion
1.They did not answer the phone (3 attempts) N = 90
2. They did not want to participate N = 18
3. Community transfer N = 17
4. Loss to follow-up N = 12
5. Admitted N = 10
6. Exit N = 2

Telematic visits with the patient from HP *** and coordination of follow-up with CP **

Figura 1 | **Flowchart: Patient selection and ART dispensing circuit integrating the community pharmacy (ATRCP).**

* ARTCP: antiretroviral treatment based on community pharmacy; ART: antiretroviral treatment

** CP: community pharmacy

*** HP: Hospital Pharmacy

lower risk of contagion of COVID-19 (318: 59.66%); 3) shorter waiting time (201: 37.1%); 4) time flexibility (104: 19.5%); 5) reduction of expenses (especially for public transport) (35: 6.57%). A total of 11 (2%) patients reported no benefit. Most patients (411/533; 77.1%) confirmed that they did not encounter any problems. The main limitations reported were: 1) lack of privacy preservation (65: 12.2%); 2) lack of coordination in the organization (Hospital Pharmacy-Community Pharmacy (57: 10.7%).

DISCUSSION

The approach to shared pharmaceutical care between community and hospital pharmacies in dispensing OHM, with the leadership of the hospital pharmacy, is expanding into new practice settings and includes improved patient care services, especially for those with chronic diseases [12-14], and particularly in patients living with HIV [15,16].

The integration of the community pharmacy into an ART dispensing program, coordinated from the hospital pharmacy, was conceived in response to the COVID-19 pandemic during the most restrictive confinement period, out of concern that patients would interrupt ART due to difficulties in travelling to the hospital, and for security reasons, avoiding overcrowding of patients in the hospital pharmacy and thus reducing the risk of spreading COVID-19. The present study describes the experience and can be considered successful. 71.9% of the patients were very satisfied and most of them preferred to continue

M. E. Molas, et al.

Impact of the COVID-19 pandemic: Community and hospital shared pharmaceutical care model. Satisfaction and acceptability of patients with HIV infection on antiretroviral treatment

Table 1	Participant's characteristics
Characteristics	533
Men, n (%)	440 (82.6)
Women, n (%)	93 (17.4)
Mean, age (DS)	48.33 (11.96)
Ethnicity n (%)	
Caucasian	392 (73.5)
Hispanic	116 (21.8)
Arab	10 (1.9)
Asian	7 (1.3)
African	8 (1.5)
Toxic habits, n (%)	
Smoking	226 (42.4)
Alcohol consumption	10 (1.9)
Consumption of drugs of abuse	117 (22)
"Chem Sex"	32 (6)
HIV	
CD4T cells / µL, median (IQR)	800 (610-1008)
Viral Suppression <50 copies / mL, n (%)	526 (98.7)
Detectable CV between 20-100 copies / mL, n (%)	6 (1.12%)
Detectable CV> 200 copies / mL, n (%)	1 (0.19%)
ATR characteristics, n (%)	
Monotherapy	22 (4.1)
Biotherapy	108 (20.3)
Triple therapy	401 (75.2)
Concomitant medication, n (%)	
Total patients	304 (57)
Polypharmacy> 5 drugs	89 (16.7)
DDIs	109 (20.5)

* DS: Standard deviation; IQR: Interquartile range; CV: viral load; DDIs: Drug–drug interaction

Table 2	Descriptive analysis of the results of the satisfaction questionnaire: ART dispensing model based on the Community Pharmacy (n = 533)	
Quality dimensions	Description	n (%)
1. Degree of satisfaction	Very satisfied	383 (71.9%)
	Satisfied	139 (26.1%)
	Dissatisfied	11 (2.1%)
2. Acceptance (dispensing preference)	Community Pharmacy	406 (76.2)
	Hospital Pharmacy	48 (9%)
	Indifferent	79 (14.8%)
3. Accessibility (choice of community pharmacy)	Pharmacy close to home	453 (85%)
	Pharmacy away from home	41 (7.7%)
	Indifferent	39 (7.3%)
4. Score (score from 0 to 10)	9-10	379 (71.1)
	7-8	138 (25.9)
	5-6	10 (1.9)
	<5	6 (1.2)

pharmacy can participate in the dispensing of ART, but also that they can contribute to reduce the burden on the hospital health system [19]

The value of the clinical pharmacist as a member of a multidisciplinary HIV care team resulted in improvements in ART adherence [18], in the detection of DDIs, as well as in the quality of prescription and patient safety [20]. It would be interesting to carry out specific training in the area of patient care in ART for community pharmacists. Indeed, in the present study, 20.5% of DDIs that could be detected early were identified.

The main limitation of this study is that it was carried out in a cohort of stable HIV patients, with optimal adherence to ART (selected by computerized registries of the Hospital Pharmacy), therefore it is subject to selection bias. Specific studies would be required in patients with suboptimal adherence, or risk thereof (cultural barrier, social problem, psychiatric disorder) in order to evaluate whether community pharmaceutical care continues to offer the benefits and safety it has demonstrated in highly adherent patients.

The COVID-19 pandemic has valued shared pharmaceutical care between community and hospital pharmacy and will likely reveal new roles that they could play in our environment, beyond the pandemic.

FUNDING

with the implemented model. A low percentage of patients (14.8%) stated that they were indifferent when choosing the service provider (Hospital Pharmacy versus Community Pharmacy), while only 9% preferred dispensing in the hospital environment. This indicates that the program has possibilities for improvement, in terms of confidentiality and coordination between pharmaceutical teams.

The findings of our study confirm the observations in the literature of the benefits reported, such as the flexible hours offered by the community pharmacy [17], and the easy access, both temporal and geographic [18] during the current health emergency. This demonstrates not only that the community

M. E. Molas, et al.

Impact of the COVID-19 pandemic: Community and hospital shared pharmaceutical care model. Satisfaction and acceptability of patients with HIV infection on antiretroviral treatment

CONFLICTS OF INTEREST

The authors declare no conflict of interest

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