

How the community pharmacist contributes to the multidisciplinary management of heart failure

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ABSTRACT

Objective: To define how the community pharmacist contributes to the management of heart failure by exploring the type of service he provides to patients and by assessing what patients expect from him. **Setting:** Pharmacists of the Franche-Comte region (France) and patients of the Franche-Comté Heart Association. **Method:** Two questionnaires were drawn up and sent to pharmacists and patients. **Results:** The 118 pharmacists participating in this survey (36.9%) felt that they had a role to play in dispensing drugs (100.0%), educating patients about their treatment (83.1%), informing patients about the importance of observance (81.4%) and over-the-counter drugs (58.5%), distributing heart failure brochures (51.7%) and providing medical equipment (44.9%). On the other hand, only a third of them thought that they should inform patients about their illness and give advice by phone. On the whole, knowledge level is good for disease, drug therapy, contraindicated drugs, medical supervision and hygieno-dietetic management, but intermediate or poor for alert signs of decompensation, essential vaccinations and patient associations. University training in this area during formal pharmacy studies is considered either “insufficient” or “very insufficient” in 56.9% of cases. Although more than 99% of the pharmacists think that additional training is needed, only 33.1% had actually benefited from such training. Of the 96 patients (48.0%) who completed the questionnaire, 92.6% are faithful to their pharmacist. They contact him more about drug therapy than about their disease, or information related to treatments. Roles attributed to their pharmacist are mainly related to drug therapy explanation and information con-

cerning over-the-counter drugs. Therapeutic education is known to 40.6% of interrogated patients. Among these patients, two-thirds depend on their pharmacist and feel that he is capable of providing the necessary education. Moreover, 46.2% of patients had received some form of therapeutic education from their pharmacist. Pharmacists believe that they are able to assume this role in 67.8% of cases. **Conclusion:** In spite of biases, this study allowed us to assess the expectations of heart failure patients with regard to the pharmaceutical management of their disease, thus clarifying the indispensable contribution that pharmacists make in the management of this disease.

Keywords: Heart Failure; Management; Community Pharmacist

1. BACKGROUND

Heart failure remains a common diagnosis and is an important public health problem [1]. The prevalence of heart failure exponentially increases with advanced age [2]. Depending on the severity of symptoms, heart dysfunction, age and other factors, heart failure can be associated with an annual morbidity and mortality of 5% to 50% [2]. Although many causes of heart failure exacerbations requiring hospitalisation can be identified, medication and dietary noncompliance have been reported as contributing factors in up to 33% of hospitalised patients [3]. However major advances in both diagnosis and management have occurred and will continue to improve symptoms and patient outcomes [4-6].

A multidisciplinary approach to managing patients suffering from heart failure has been shown to improve outcome [7]. Yet the place and the role of the community pharmacist in the multidisciplinary management of heart

failure have not been defined. Pharmacists may play a role in drug dispensation, patient follow-up and monitoring of drug therapy. However, the role of the pharmacist could be extended.

Therefore, the aim of this study was to define how the community pharmacist contributes to the management of heart failure by exploring the type of service he provides to patients and by assessing what patients expect from him.

2. METHOD

2.1. Study Design

To achieve the aim of our study, we developed and sent two anonymous questionnaires, first to pharmacists and then to heart failure patients.

The first questionnaire, for pharmacists, was subdivided into five parts: 1/pharmacist characteristics: permanent (yes or no), how long he has had his qualifications (< 5, (5-9), (10-14), > 15 years), pharmacy location (country, city center, urban district, shopping center), number of follow-up heart failure patients (0, (1-5), (6-10), (11-15), > 15), faithful patients (yes or no); 2/knowledge of heart failure (disease, alert signs of decompensation, drug therapy, contraindicated drugs, hygieno-dietetic management, medical supervision, essential vaccinations, patient association) and role to play (in dispensing drugs, educating patients about their disease and treatment, informing patients about over-the-counter drugs and the importance of observance, referring patients to other health professionals or patient/support associations, providing medical equipment, giving advice by phone, distributing brochures about heart failure); 3/asked questions by patient: frequently (yes or no), ability to answer (frequently, sometimes, rarely, never), adopted behaviour if no answer (searching for answer in documents, on internet, contacting the patient's physician); 4/initial university training (very satisfactory, satisfactory, insufficient, very insufficient) and continuing education (necessary, yes or no); 5/therapeutic education: knowledge (yes or no), investment and motivation to provide it (yes or no), privacy space (yes or no).

This questionnaire was distributed to the pharmacists of the Franche-Comté region, via three wholesale distributors. One pharmacist per pharmacy was allowed to answer the questionnaire.

The second questionnaire, for patients, was subdivided into three parts: 1/patient characteristics: age (years), sex (female or male), duration of disease (years), residence (city or country), faithfulness to community pharmacist (yes or no) and grounds (good drug therapy knowledge or good advice provided by pharmacist;

pharmacist listens attentively to patients and when necessary refers them to other health professionals; proximity of pharmacy, other); 2/roles and expectations regarding the way the pharmacist manages their disease: a) how often patients ask questions about disease or drug therapy (frequently, sometimes, rarely, never), pharmacists responses (very satisfactory, satisfactory, insufficient, very insufficient); b) good contact for any request related to disease or drug therapy, information on over-the-counter drugs, medical follow-up, medical supervision, hygienodietetic management, referral to other health professionals or support/patient associations (yes or no); 3/therapeutic education: knowledge (yes or no), trust pharmacist to provide it (yes or no), in pharmacy (yes or no).

This questionnaire with stamped envelope for return was distributed to patients of Association de Cardiologie de Franche-Comté (id est. Franche-Comté Heart Association).

Both questionnaires were accompanied by a letter explaining the aim of the study and instructions on how to return the completed questionnaire. Questionnaires were collected, centralized and analyzed.

2.2. Statistical Analysis

SAS 9.1® software was used for questionnaire analysis. Continuous variables were described by mean \pm standard deviation and median with ranges [minimum value – maximum value] and qualitative variables by the number and percentage. Quantitative and qualitative variables were compared respectively by the Wilcoxon Mann-Whitney and the Fisher exact test or the chi square test. The tests were significant at an alpha threshold of 5% (p).

3. RESULTS

3.1. Pharmacist Point of View

3.1.1. Pharmacist Characteristics

Out of the 320 distributed questionnaires, 118 (36.9%) were analysed. Results revealed that pharmacists are mainly permanent (75.4%) and have been qualified for more than 15 years (57.7%). Permanent pharmacists have been qualified longer than assistant pharmacists ($p < 10^{-4}$). More than half of the pharmacists work in rural areas (53.8%) and others in urban districts, city centers and shopping centers respectively in 23.1%, 19.7% and 3.4% of cases. On the whole, they provide follow-up to more than ten heart failure patients (70.1%). Heart failure patients tend to be very faithful (96.6%).

3.1.2. Knowledge of Heart Failure and Role to Play

Pharmacists' assessment of their own knowledge of heart failure is summarized in **Table 1**.

Their knowledge level with regard to drug therapy, hygieno-dietetics, and essential vaccinations was significantly related to the number of patient follow-ups in the pharmacy (respectively, $p = 0.04$, $p = 0.01$ and $p = 0.02$). Pharmacists' knowledge level increased with the number of patients. Disease knowledge was significantly positively related to drug therapy knowledge ($p < 10^{-3}$), contraindicated drugs and alert signs of decompensation knowledge ($p = 0.01$).

Without taking into account drug dispensation (100.0%), the pharmacist plays different roles in: educating patients about their treatment (83.1%), informing them about the importance of observance (81.4%) and over-the-counter drugs (58.5%), distributing brochures about heart failure (51.7%) and providing medical equipment (44.9%).

One-third of the pharmacists in our study also play a role in educating patients about their disease (35.6%) and providing advice by phone (33.0%). Referral to other health professionals and support/patient associations was only found for respectively 22.0% and 11.0% of pharmacists.

3.1.3. Questions Asked by Patients

Pharmacists estimated that more than a third of all patients (33.9%) often ask them questions. However, pharmacists were unable to answer these questions in 69.1% of cases. There is no significant difference between the frequency of questions and the ability to an

swer ($p = 0.69$). If the pharmacist cannot answer, immediately, he tries to find the answer in documents (82.8%), on internet (43.1%) or by contacting the patient's physician directly (68.1%).

3.1.4. Initial University Training and Continuing Education

Initial university training about heart failure was judged satisfactory to very satisfactory by 43.1% of pharmacists. More than 99% of them consider it necessary to have a additional training. However, only 33.1% of pharmacists ever actually had continuing education. The older the qualifications, the more dissatisfied the pharmacist was with his initial university training ($p = 0.02$) and the more interested he was in additional training ($p < 10^{-3}$). Continuing education was also significantly positively related to the number of heart failure patient follow-ups in the pharmacy ($p = 0.04$), permanent pharmacist status ($p = 0.04$), and how long the pharmacists has been qualified ($p < 10^{-3}$).

3.1.5. Therapeutic Education

77.1% of pharmacists participating in our study known about therapeutic education and they think that they are able to play this role in 67.8% of cases. More than two-thirds (70.3%) have privacy space.

3.2. Heart Failure Patient Point of View

3.2.1. Patient Characteristics

Of the 200 questionnaires distributed to patients, 96 (48.0%) were collected and analysed. Patient characteristics are summarized in **Table 2**. The mean age of disease was estimated at 8.3 ± 0.9 years, with a median of 6 years (1-51).

Patients are faithful to their pharmacist in 92.6% of cases for different grounds (**Table 3**). Patients living in the city are significantly more faithful than patients living in the country ($p < 10^{-2}$). Listening and referral to other health professionals are significantly related to the sex of patients ($p = 0.02$): these roles are important for

Table 1. Pharmacist self-evaluation: Knowledge of heart failure.

n = 118	Knowledge Level, number (%)			
	Very Good	Good	Average	Poor
Disease	4 (3.4)	68 (57.6)	43 (36.4)	3 (2.5)
Alert signs of decompensation	6 (5.1)	36 (30.5)	55 (46.6)	21 (17.8)
Drug therapy	11 (9.3)	88 (74.6)	18 (15.3)	1 (0.9)
Contraindicated drugs	11 (9.3)	59 (50.0)	42 (35.6)	6 (5.1)
Medical supervision	5 (4.3)	51 (43.2)	51 (43.2)	11 (9.3)
Essential vaccinations	3 (2.5)	34 (28.8)	48 (40.7)	33 (28.0)
Hygieno-dietetic management	15 (12.7)	70 (59.3)	31 (26.3)	2 (1.7)
Patient association	0 (0.0)	3 (2.5)	29 (24.6)	86 (72.9)

Table 2. Heart failure patient characteristics.

n = 96	number (%)
Sex	
Female	31 (32.3)
Male	65 (67.7)
Age classes (years)	
< 60	12 (12.5)
(60-75)	64 (66.7)
> 75	20 (20.8)
Residence*	
City	60 (63.2)
Country	35 (36.8)
Faithfulness to the pharmacy*	
Yes	88 (92.6)
No	7 (7.4)

32.0% of male patients as opposed to only 9.8% of female patients.

3.2.2. Pharmacist Roles and Expectations Regarding the Management of their Disease

Patients contact their pharmacist mainly to ask questions about drug therapy rather than about their disease (respectively, 58.0% and 31.0% of cases). Responses are satisfactory or very satisfactory in 77.2% of cases. But more than 15% of patients do not have an opinion.

Patients state that contact with their pharmacist is good for any request of information related to treatments (explanation, information on over-the-counter drugs) (Table 4).

However, for disease explanation or medical follow-up/supervision, attitudes differ. Men think that the pharmacist has a role in medical follow-up and medical supervision, whereas most women do not (respectively, $p = 0.04$ and $p = 0.02$).

3.2.3. Therapeutic Education

40.6% of patients indicated that they were familiar with therapeutic education and this was not significantly related to the sex ($p = 0.65$) or age ($p = 0.15$) of patients or to their place of residence (city or country, $p = 0.35$). Among patients familiar with therapeutic education, two-thirds (69.2%) depend on their pharmacist and think that he can. Moreover, 46.2% of patients had received some form of therapeutic education from their pharmacist.

4. DISCUSSION

Heart failure management is a public health priority. The multidisciplinary approach to managing it has been shown to improve outcome, in particular in terms of hospitalisation [4-6,8]. However, the role of the community pharmacist has not been evaluated. Since patients always have to visit their pharmacy to collect their drug therapy, it seems coherent to include community pharmacists in multidisciplinary management. We therefore felt that, by using two questionnaires, we could assess: 1/pharmacists: their knowledge of heart failure and their

Table 3. Grounds of faithfulness.

Grounds of faithfulness, n = 88	number (%)
Pharmacist's good drug therapy knowledge	57 (64.8)
Pharmacist's good advices	33 (37.5)
Pharmacist's ability to listen to and refer patients to others health professionals	14 (15.5)
Proximity of pharmacy	69 (78.4)
Other	7 (8.0)

Table 4. Roles attributed to the pharmacist by heart failure patients.

n = 96	Is the pharmacist qualified and capable of providing necessary information? number (%)
Disease explanation	
<i>Yes</i>	20 (20.8)
<i>No</i>	76 (79.2)
Drug therapy explanation	
<i>Yes</i>	68 (70.8)
<i>No</i>	28 (29.2)
Information on over-the-counter drugs	
<i>Yes</i>	55 (57.3)
<i>No</i>	41 (42.7)
Medical follow-up	
<i>Yes</i>	36 (37.5)
<i>No</i>	60 (62.5)
Medical supervision	
<i>Yes</i>	13 (13.5)
<i>No</i>	83 (86.5)
Hygieno-dietetic management	
<i>Yes</i>	29 (30.2)
<i>No</i>	67 (69.8)
Referral to support associations	
<i>Yes</i>	9 (9.4)
<i>No</i>	87 (90.6)
Referral to others health professionals	
<i>Yes</i>	18 (18.8)
<i>No</i>	78 (81.2)

roles especially concerning their ability and willingness to provide therapeutic education and 2/patients: roles and expectations regarding pharmacist management of their disease, and also whether or not they trust pharmacists to provide therapeutic education. Pharmacists and patients included in this study constitute a specific sample. Thus, 320 of 437 community pharmacists of the Franche-Comté region (73%) received a questionnaire and 118 of them (37%) responded. Among patients of the Franche-Comté Heart Association, 96 responded. They were not representative of the total number of heart failure patients (selection bias) because they have already accepted the disease and are willing to share their experience with other patients. On the whole, we can consider the patient response rate satisfactory, especially since our study did not include a reminder or anonymous

follow-up mail to patients.

Heart failure patients, over sixty years old in 88% of cases (over seventy-five years old in 21% of cases) are satisfied with their community pharmacist and are faithful to him. They express some expectations related to their questions. To our knowledge, patient expectations have never been studied. For most patients, the community pharmacist is a drug therapy specialist (explanation and information on over-the-counter drugs). However, few patients (between 9% and 38%) think that the pharmacist must play other roles such as: disease explanation, medical follow-up, medical supervision, hygieno-dietetics management, referral to support associations or to other health professionals. A better integration and involvement of the community pharmacist in the managing heart failure patients could improve this image. Thus, for example, in terms of public health, collaboration between support association/health professionals and community pharmacists could be envisaged.

Efforts to promote adherence should be included in programs involving a multidisciplinary team with community pharmacist participation designed to improve heart failure therapy and outcomes. Pharmacists have an important role to play in educating patients. Patient therapeutic education is a vital component of heart failure management and reinforces the importance of medication adherence. Thus, in spite of the fact that 59% of patients polled did not know about therapeutic education, among those familiar with it, two-thirds depend on their pharmacist and think that he is capable of providing it. Moreover, 46.2% of patients had received some form of therapeutic education from their pharmacist. 77% of pharmacists polled know about therapeutic education and they feel that they are able to play this role in 68% of cases. Therapeutic education ordinarily takes place in a hospital setting. It would be interesting to consider and promote the community pharmacy as an additional setting.

Community pharmacist follow-up more than ten heart failure patients and they tended to return regularly. Indeed, community pharmacists are in a good position to provide a local service. Their work should not be limited to drug dispensation, but must include educating patients about their treatment, informing about the importance of observance and therapeutic education, and providing medical equipment. However, community pharmacists are not comfortable in all fields. Their initial university training about heart failure was considered insufficient or very insufficient by 57% of community pharmacists. The older the qualifications, the more dissatisfied the pharmacist was with his initial university training. This could explain why pharmacists were unable to answer in 69% of cases when patients inquired about heart failure. Almost all feel that it is necessary to have continuing

education, but only one-third have ever had it. An additional refresher course is essential to remedy this situation and to ensure an effective and competent participation in the multidisciplinary management of heart failure patients.

The design of our study is original, exploring both the pharmacist and the patient's point of view. It is debatable whether or not the present study results may be compared with those obtained in the literature. Some studies have assessed the role of the community pharmacist in the management of heart failure [9-13]. Thus, Gattis *et al.* show that heart failure outcomes can be improved with a clinical pharmacist as an important component of the multidisciplinary heart failure team [14]. Pharmacists contribute to the overall care of these patients, but should be appropriately trained. Murray *et al.* show that pharmacist intervention for outpatients with heart failure can improve adherence to cardiovascular medications and decrease health care use and costs, but the benefit probably requires constant involvement because the effect dissipates when the intervention ceases [13]. Pharmacist received training for their intervention. The same is true of the Bouvy *et al.* study [9].

In the United Kingdom, the government has been encouraging an extension to the role of community pharmacists, including independent prescribing, medicine use review and a health promotion role to provide advice about, diet and nicotine addiction, among other issues [15]. In the United Arab Emirates, the introduction of a clinical pharmacy programme involving optimization of drug treatment and intensive education and self-monitoring of patients [11]. In Canada, the involvement of pharmacists in problems of patient compliance goes back many years and has been studied through the PRECEDE pharmacist education program which espouses a thorough structured approach to patient education incorporating patient's beliefs [16]. Community-based pharmacists are embedded in an infrastructure where they are essential for patients to receive medication.

Pharmacist's involvement in a disease management program will improve the care given to patients with heart failure.

5. CONCLUSIONS

In spite of biases, this study allows us to assess the expectations of heart failure patients with regard to the pharmaceutical management of their disease, thus, clarifying the indispensable contribution that pharmacists make in managing this disease.

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7. CONFLICTS OF INTEREST

There is no potential conflict of interest related to the content of this manuscript.

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