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ASPIRIN, PATIENT KNOWLEDGE AND PHARMACEUTICAL INFORMATION AFTER A STROKE

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ABSTRACT

Aim of the study: ischemic stroke is a serious pathology, responsible for many situations of chronic disability. Taking a very early treatment can prevent complications and reduce sequelae. Aspirin is one of the major treatments after stroke and prevents recurrence. Taking a lifelong treatment requires medication adherence and patient compliance. Clinical pharmacists inform patient at the bedside about his treatment. The aim of this study is to evaluate if the pharmacist could improve patient knowledge about benefits and risks of aspirin and in consequence potentially improve patient's compliance. Methods: prospective study was conducted in the Neurovascular Care Unit during one year. Pharmacists and physicians created a booklet about aspirin and a patient questionnaire (7 questions). These tools were used during the patient interview conducted by clinical pharmacists at the bedside in the care unit. Questions were about general knowledge of aspirin and the last question was about the satisfaction of delivered aspirin information during hospitalization. The booklet was used to inform patient and complement pharmacist interview. At the end of the interview the same 7 questions were asked again. Results: 73 patients were interviewed. Pharmaceutical interviews can improve significantly the patient knowledge about aspirin ($p<0.01$). After the pharmaceutical information, the patient dissatisfaction decreased significantly ($p<0.001$). Conclusion: this booklet is one way to optimize patient treatment by enabling them to better understand their pathology. The clinical pharmacist can play a role in optimizing the management of adverse effects by informing the patient and by ensuring adherence to treatment. The purpose of these interviews with the patient is to maximize the compliance or patient's adherence to treatment to ensure its efficiency and limit the adverse effects. The medical staff and clinical pharmacists are able to support the patient for the fulfillment of preventive measurements after cerebral stroke.

Key words: Pharmacy, Interview, Anti-platelet.

INTRODUCTION

Ischemic stroke is one of the major challenges to health. Cerebral ischemia is the third most common cause of death in developing countries and the second most common cause of death above the age of 60 years [1]. Real ischemic stroke or transient ischemic attack presents a very high early risk of recurrence. Preventive treatments are promptly required. During emergency admission, this secondary preventive treatment is well known and

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prescribed. Aspirin, an anti-platelet agent, is one of the major treatment and its role in preventing recurrence is well established [2]. The majority of patients, after an ischemic stroke, have to take this drug for a long time period. This could be an important stage in life, some patients do not understand immediately or need more informations to increase their treatment compliance, such as the elderly person [3].

To maximize the control of risk factors and patient's compliance, clinical pharmacists organised with medical staff agreement, a pharmaceutical interview at hospital discharge with a booklet. Clinical pharmacists are at the bedside of the patient in the care unit, in order to optimize the care from admission until discharge. In a recent study, B. Allenet *et al.* describe the role of clinical pharmacists [4]. They promote the good use of medication, they improve the drug supply chain safety and warn of adverse drug events. Thus, clinical pharmacist advises the outpatient about this treatment. This information, by pharmacist, is an essential point for the continuity of patient care.

The aim of this study is to evaluate if the pharmacist could improve patient knowledge about benefits and risk of aspirin and in consequence potentially improve the patient's compliance.

METHODS

This prospective study was conducted in the Neurovascular Care Unit (a total of 26 beds) of a Neurosciences Department from May 2012 to May 2013. Patients presented with ischemic stroke or transient ischemic attack.

Booklet creation

Pharmacists and physicians created a booklet about aspirin for patient information. This booklet (created with Publisher® software) allows the pharmacist to conduct a structured and reproductible interview with the patient. Several topics were approached: why aspirin was prescribed, dosage and administration, advice to prevent risks and preserve treatment efficiency.

Patient quiz

The pharmaceutical team created a paper questionnaire about aspirin. This questionnaire was organized into seven issues: 1- Can you give the commercial name of the drug? 2- Do you know what is it used for? 3- Do you know how to take aspirin? 4- Do you know the risks and the adverse effects related to taking this medication? 5- If you decide not to take this drug, do you know the risks? 6- Do you know which pain medications, not to take with aspirin? 7- How do you rate at this date the information you received on aspirin?

Patient interview

At the beginning, when the pharmacist met the patient, he asked the seven questions of the questionnaire. After the patient answered, the pharmacist used the booklet to complete the interview. At the end of the interview, the pharmacist asked the same issues again, with the questionnaire.The patient interviews were conducted by a pharmacist or a resident.

Statistical analysis

An input mask was developed under the Microsoft Office Excel®. Each patient acts as their own control. Qualitative variables were compared by Mc Nemar Chi squared ^{2} test. Results were considered as significant if $p < 0.05$. Quantitative values were expressed by mean ± SEM. All statistical tests were performed with R software approved by INSERM online [5].

RESULTS

During the study period, 73 patients were interviewed. All patients approached agreed to participate in the study. We included 40 men representing 55 % of the study population. The average age of the selected patients was 69 ± 12.8 (45 to 94 years).

The pharmaceutical team selected six important criteria: commercial name, mechanism of action, taking mode, adverse effects, risks and contraindications. After information, 92 % of patients acquired at least one of the six criteria (figure 1). More than half of patients acquired at least three criteria from the information performed by the pharmaceutical team.

If we look at the knowledge, aspirin information before and after pharmaceutical interview, of the patient we can see the diversity of knowledge among patients (figure 2). Pharmaceutical interviews can improve significantly the patient knowledge about commercial name, adverse effect, contraindications ($p<0.01$), mechanism of action, administration mode and risks ($p<0.001$).

Before pharmaceutical information, 52 % of interviewed patients expressed their dissatisfaction about the information received on aspirin (figure 3). After information by pharmacists, 97 % were satisfied with the information received (70 % very satisfied, 27 % satisfied). Pharmaceutical informations significantly decreased the dissatisfaction about information ($p<0.001$).

**Figure 1. Acquisition of different criteria by the patient after information by pharmaceutical team.**
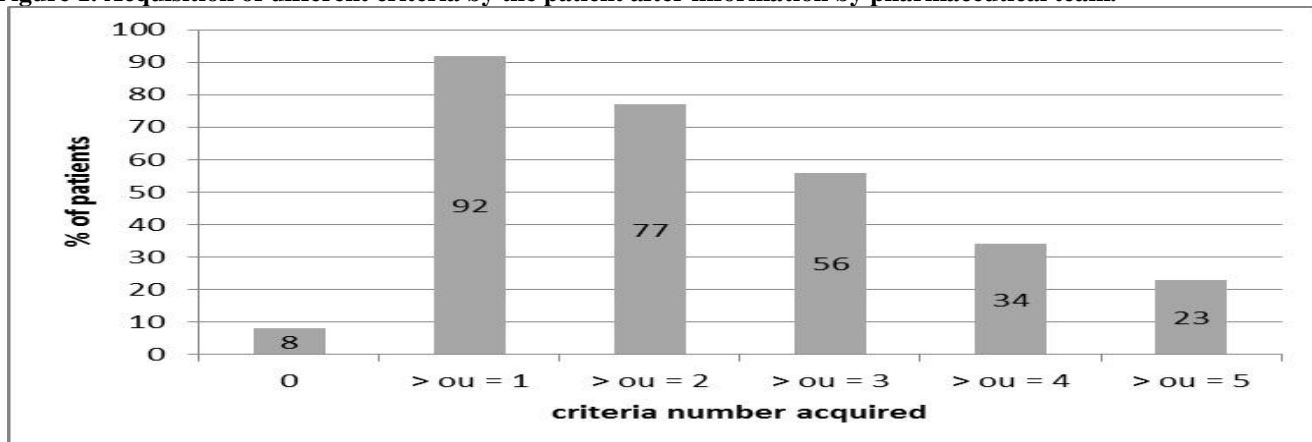
Individual cognitive acquisition after pharmaceutical interview. Criteria are detailed in methods. Each patient acts as their own control and items are counted positive if answer is appropriate after pharmaceutical interview.

Figure 2. Distribution of patients according to their knowledge for criteria before (B) and after (A) information. ** p<0.01, *** p< 0.001
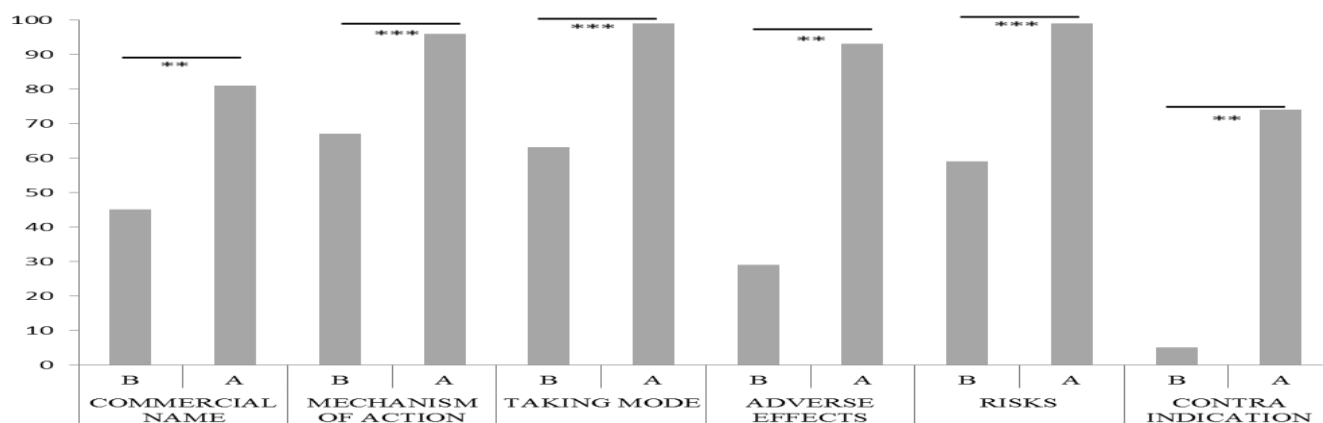
Global cognitive acquisition after pharmaceutical interview. Criteria are commercial name, mechanism of action, taking mode, adverse effects, risks and contra indication. Items were counted positive if patients answered correctly before pharmaceutical interview, named B, or after pharmaceutical interview, named A

Figure 3. Patient satisfaction before and after pharmaceutical information*p<0.001**
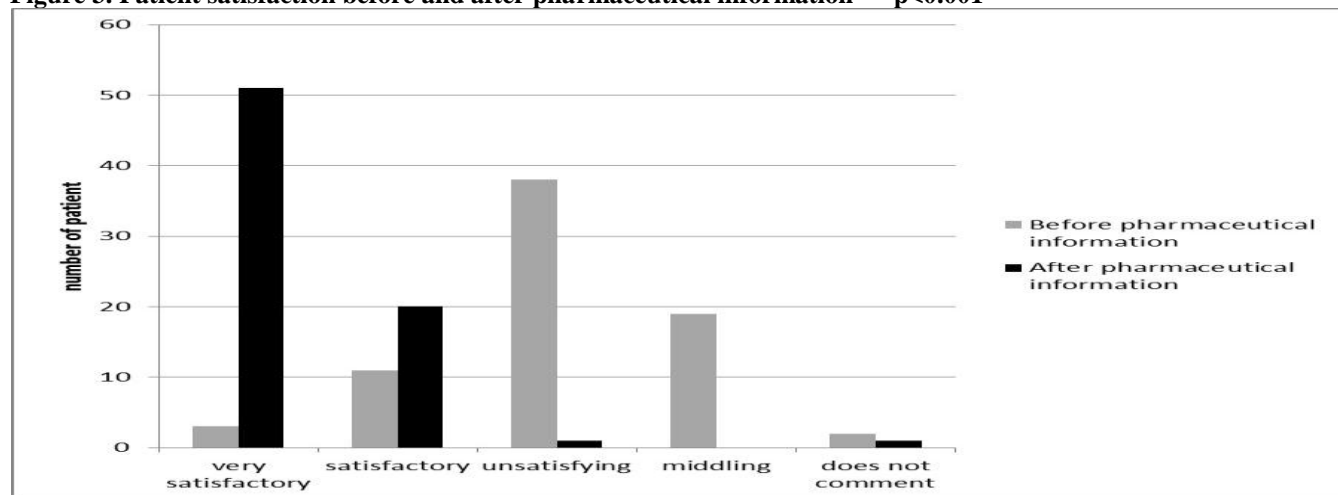
Improve of patient satisfaction before and after pharmaceutical interview. 5 classes are defined : does not comment, middling, unsatisfying, satisfactory, very satisfactory

DISCUSSION AND CONCLUSION

In this study, we opted to develop a booklet about aspirin because this is one of the main drugs in the treatment of ischemic stroke or transient ischemic attack. This booklet is one way to better appropriate treatment and therefore to better understand his pathology. The interview also allows the pharmacist to ensure the practical organization of the medications. This includes procedures for making. The clinical pharmacist can play a role in optimizing the management of adverse effects by ensuring their care, informing the patient about the interest and by making sure of adherence to treatment. In our study, the majority of patients surveyed acquired knowledge of aspirin. A patient well informed knows how to act if adverse effects occur [6]. Indeed, a study showed that most knowledgeable patients are more conscientious and self-educated [7].

Indeed, a study reports the results of 3540 patients' questionnaires about their expectations of care. Among the top ten of priorities of patients in Europe with respect to general practice care, we find the need for information on purpose of the treatment in detail [8]. The purpose of these interviews with the patient is to maximize the compliance or patient's adherence [10,11] to treatment to ensure its efficiency and limit the iatrogenicity [4]. In effect, Sanchez-Gili et al. report an increase of 45.5 % in compliance before and after pharmaceutical intervention in chronic renal disease patients [9]. However, Bushnell et al. report in their study that 14 % of patients were non-adherent at least one of the treatments one year after stroke [12]. In our study, more than half of patients expressed dissatisfaction with the lack of information received on aspirin during hospitalization, before pharmaceutical interview. The reasons of this non adherence situation are probably multifactorial. We could suppose that the dissatisfaction of information received during hospitalization could decrease the patient's compliance. Our work showed that pharmaceutical information with booklet support can significantly improve the patient's knowledge, and accordingly increase satisfaction about information. Chen et al. showed in a study, conducted in patients with epilepsy, that post-counseling knowledge scores were significantly higher than pre-counseling score [10].

Finally, at the discharge, difficulties are well known for the fulfillment of preventive measurements after cerebral stroke [13], perhaps one solution could be the patient himself as a key player for his health. Krucien et al. showed that patients wish to play an active part in their health [14]. Recent years, the authorities have introduced several laws to ensure the drug quality of care in hospitals: implementation of actions to enhance patient information [15,16].

We also know that to reduce cardiovascular risk factors (such as dyslipidemia and hypertension) leads to a significant improvement in stroke outcomes [17]. We need to inform and manage patients with regards to health prevention.

STUDY LIMITATIONS

One limitation is the monocentric nature of study. Working with a single center limits extrapolation of the results to a larger population. We can also report an information bias regarding information given to patients by the pharmaceutical team (three pharmacists). Evaluation of knowledge has been made during only pharmaceutical interviews and information has to be reassessed after time period discharge.

CONFLICT OF INTERESTS

The authors report no conflicts of interest in this work.

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