GAVIN PUBLISHERS

Applied Clinical Pharmacology and Toxicology

Brahmi S, et al. Appl Clin Pharmacol Toxicol: ACPT-114.

DOI: 10.29011/ ACPT -114. 100014

Research Article

Pharmaco Economic Impact of Pharmaceutical Interventions of Patients Under Anti-Vitamin K: Case of Acenocoumarol at The Level On The HUE of Oran Algeria

Brahmi S[1,2*], Boukli A[1,2], Lazerag S[1,2] Bakhti I[1,2], Boukersoul N[1,2], Senhadji I[1,2], Seddiki M[1,2], Djedid S[1,2], Mansouri Z[1,2], Zitouni H[1,2], Mekaouche Fzn[1,2], Fetati H[1,2], Memou A[1,2], Belbouche N[1,2], Boudia F[1,2], Toumi H[1,2]

[1]Service of Pharmacovigilance, Hospital University Establishment (HUE) Of Oran Algeria, Algeria

[2]Research Laboratory in Pharmaceutical Development, Algeria

[*]**Corresponding author:** Brahmi Soumia, Service of pharmacovigilance, hospital university establishment (HUE) of Oran Algeria, Research laboratory in pharmaceutical development, Algeria. Email: sousygonzalez@gmail.com

Citation: Brahmi S, Boukli A, Lazerag S, Bakhti I, Boukersoul N, et al. (2018) Pharmaco economic impact of pharmaceutical interventions of patients under anti-Vitamin K: case of acenocoumarol at the level on the HUE of Oran Algeria. Appl Clin Pharmacol Toxicol: ACPT-114. DOI: 10.29011/ ACPT -114. 100014

Received Date: 26 September, 2018; **Accepted Date:** 26 November, 2018; **Published Date:** 05 December, 2018

Abstract

Oral anticoagulants have an essential treatment for thromboembolic diseases, however they are responsible for major iatrogenic accidents, hence the need for Pharmaceutical Interventions (PI) to improve the safety of care and reduce the costs of the charges. Our study was conducted over a period of 2 years, and its main objective was to evaluate the pharmaco economic impact of the PI of patients treated with acenocoumarol, using several tools: PI file (SFPC), software for the analysis of drug interactions (Vidal 2016 Expert, guide prescribe ...), a total of 97 requirements were analysed, 74% of PI had a pharmaco-economic impact, of these, 77% resulted in a decrease in management costs, and the direct costs avoided were estimated at 103.9 €/month, or 2.6 € / patient /month. The pharmaco economic valorisation is here underestimated because the chosen methodology did not include the indirect costs of PI, however the calculation of these costs will require more human and technical means. Our study has shown that the implementation of a pharmaceutical analysis of the requirements could lead to savings on drug expenditure.

Keywords: Acenocoumarol; Pharmaceutical Intervention; Pharmaco Economic Impact

Introduction

The Anti-Vitamin K (AVK) are used in the treatment of thromboembolic diseases. their effectiveness is inseparable from their major risks: the thrombosis and haemorrhage, sometimes severe, and therefore increase the burden and the cost of treatment [1]. Indeed, the AVK hold an important place in the iatrogenic medications. the investigation ENEIS 1 and 2 shows in particular that the AVK are ranked first in France of drugs responsible for serious iatrogenic accidents.

The Emir study confirms the previous data showing that The AVK still correspond to the highest incidence of hospitalization for side effects. This translates into 12 to 13% of hospitalizations for side effect has approximately 17000 hospitalizations and approximately 5000 haemorrhagic accidents of fatal evolution by year [2]. This is why, the fact of the iatrogenic potential, Pharmaceutical Interventions (PI) have become necessary to Improve the safety of care and to reduce the costs of loads [3].

Objectives

The objective of this study is to evaluate the pharmacoeconomic impact of PI of patients treated by acenocoumarol, and evaluate the economic rating of direct drug costs avoided or induced by the pharmaceutical intervention.

Materials and Methods

It is a retrospective study, of a duration of 2 years, from the month of June 2016 in the month of June 2018. The analysis of the prescriptions was made using a pharmaceutical intervention sheet (SFPC), This tool contains the following information's: the date of the intervention; the sex and the age of the patient; the service of hospitalization; the drug prescription; the type of drug problem

identified (10 items and 25under items); the type of intervention formulated (7 items); the fate of the PI (the acceptance); the details relating to this intervention [4] (See Figure 1).

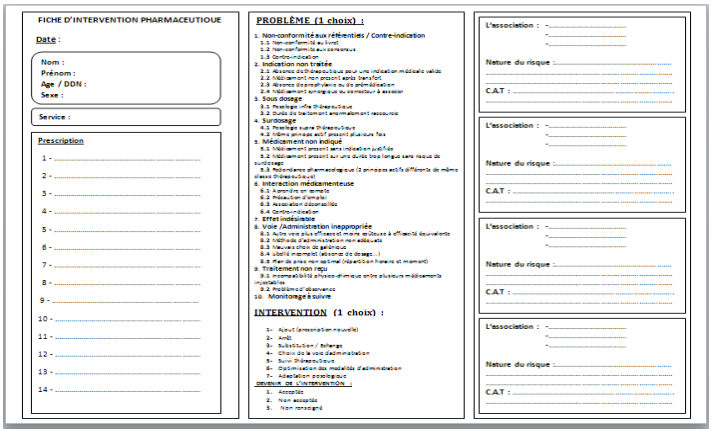

Figure 1: Pharmaceutical Intervention Sheet (SFPC).

The total avoided costs were calculated using the prices of drugs recovered of pharmacies, and represented in the following (table1).

Drug	Price(€)	Drug	Price (€)
Sintrom	1.36	Dilacard	5.06
Lovenox 0.4 IU/ml	8.22	Triatec	6.55
Aldactone	3.64	Digoxin	1.14
Lasilix	1.02	Tahor	5.67
Lopril	2.16	Zanitra	1.24
Cordarone	3.05	Levothyrox	0.98
Bisoprolol	4.25	Prostamed	10.16
Ferrosanol	5.72	Cardular	4
Votrex	1.01	Atacand	12.6

Table 1: The price of drugs.

The listed prices are according to the Algerian market in June 2018. The pharmacologist performs an pharmaco therapeutic analysis, to check for the presence of the drug interactions, for this it relies on bases of drug data (Vidal 2016 Expert, guide prescribe 2017, Thériaque) which allow him to deepen his study. For the analysis of the results of the study, the data have been processed by Excel software., of which the table has 4 parts: name of the patient, the amount of the prescription, type of the PI, and the pharmaco economic impact of the PI (See Table 2).

E2 +6.24

A	B	C	D	E
patient	prescription	amont	type of PI	cost of PI
sid ahmed ahmed	digoxine-levothyrox-triatec-sintrom-prostasir	2778.12	increase of 0.25 cp of sintrom pdt 4 days	+6.24
	digoxine-levothyrox-triatec-sintrom-prostasir-dilacard-votrex	3613.5	stop votrex	
	Same thing except votrex	3474.34	stop sintrom	
	Same thing except sintrom	3287.16	decrease of 0.5 tablets of sintrom during 4 days	+12.48
	Same thing	3287.16	decrease of 0.5 tablets of sintrom during 4 days	+12.48
sid ahmed naima	lovenox-fluimucil-ferrosanol-omeprazole -metoprolol-sintrom	2981.56	decrease of 0.5 tablets of sintrom during 6 days / stop lovenox	+1149.5
	lovenox-levothyrox-fluimucil-fer-lopressor-sintrom	2919.86	decrease of 0.5 tablets of sintrom during 5 days	+15.6
mezhoud khadidja	telfast-sintrom-atorvastatine	1196.96	/	
	theophylline-solupred-doliprane-tahor	1393.78	stop solupred	
benattia mohamed	lovenox-furosemide-ferrosanol-sintrom-captopril	2542.38	stop lasilix	
taleb berrouane	sintrom+dilacard	883.4	stop sintrom	+187.18
	sintrom	187.18	decrease of 0.5 tablets of sintrom during 10 days	+31.2
	sintrom+dilacard	883.4	increase of 0.25 cp of sintrom pdt 4 days	-15.6
beloudane houcine				
belahouel mansouria	furosemide-fluimucil-lopril-votrex -lovenox-sintrom	2154.72	substitution of lopril by lopress/stop lovenox	+1187.1
	aldactone-fluimucil-lopress-lasilix-lomac -ferrosanol-sintrom	2492.27	increase of 0.25 cp of sintrom pdt 4 days	-4.5
		2492.27	increase of 0.25 cp of sintrom pdt 4 days	-4.5
mesri yamina	levothyrox-lasilix-aldactone-sintrom	962.97	decrease of 0.5 tablets of sintrom during 10 days	+31.2
	levothyrox-lasilix-aldactone-sintrom-digoxine-bisoprolol-lovenox	2835.35	increase of 0.25 cp of sintrom pdt 3 days	-5
	levothyrox-lasilix-aldactone-sintrom-digoxine-bisoprolol-lovenox	2835.35	decrease of 0.5 tablets of sintrom during 6 days / stop lovenox	+1143.2
	Same thing except lovenox	1704.57	Same thing except lovenox	+18.72

Table 2: The analysis of the results.

For all the selected PI, the calculation of the costs has been performed according to the following formula [5].

Impact of the PI = number of days affected by the PI X UP of MPS- (NDDPX UP of the NDP)

With

UP : Unit Price.

MPS : Medicinal product stopped.

NDDP : New Daily Dosage Prescribed.

NDP : New Drug prescribed

Results and Discussion

Prescriptions

During the study, we analyzed 97 prescriptions of 40 patients treated by the Acenocoumarol, followed at the service of pharmacovigilance EHU of Oran Algeria.

Problems Detected and Pharmaceutical Intervention

The types of therapeutic problems the most detected were of dosage adjustments (62.24%), and drugs interactions (37.76%). The PI were mainly adaptations dosages, substitutions and even the stop of treatment (See Figure2)

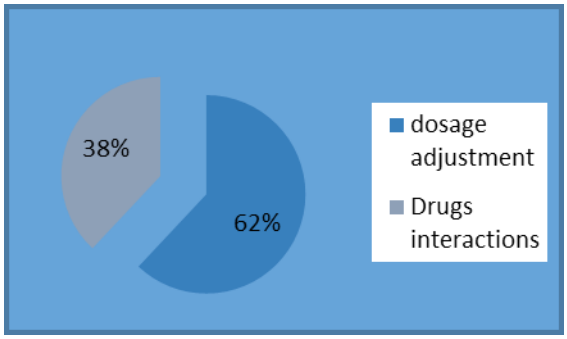

Figure 2: the types of problems.

Economic Impact

We had estimated that 74% of proposed PI had an economic impact on drug costs (see figure 3).

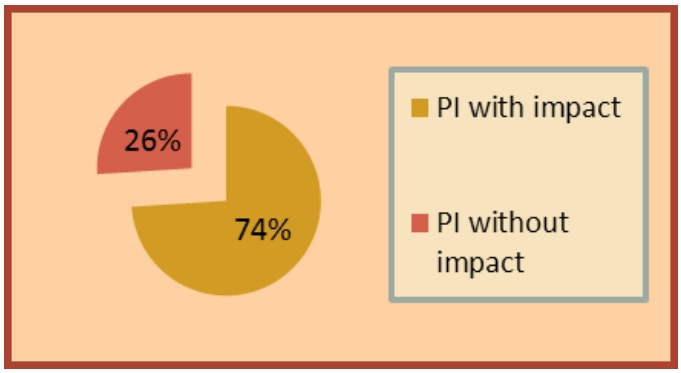

Figure 3: the distribution of PI.

Among the PI with pharmaco economic impact,77% caused a reduction in costs, while 23% entail an increase on the costs (see figure 4).

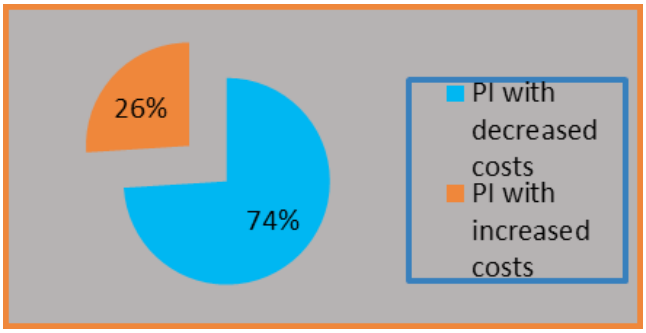

Figure 4: The impact of PI on the costs.

After having excluded all PI without economic impact, we have determined that the 23% of IP resulted in an increase in support costs of medication of 23.58€, while The 77% caused a reduction of 127.48€ of these expenditures, in total an economy of 103.9 € / month has been or (2.6 €/Patient/month). The comparison of the results of our study with the study of Thomas Gorse [5] shows that they are probably under-estimated. This may be explained by the lack of the calculation of the indirect costs of PI in terms of extension of hospitalization and complementary examinations, however the calculation of these costs will require human and technical means more important [6].

Conclusion

Our study has shown that the PI realized by the pharmacologist clearly allow for savings on the expenditure of the drug. The direct costs avoided drug by pharmaceutical interventions have a concrete impact on the drug expenditures and the extrapolation of these economies to the whole of our structure allows to realize their significance. It is preferable to have in our establishment of care a contractualisation and an analytical accounting for each patient (pricing to the activity) [7].

References

1. The anticoagulants in France in 2012: State of the places and monitoring, report of the MSNA.
2. Louët AL (20161) oral anticoagulants and iatrogenic, Georges Pompidou European Hospital, AP-HP, Paris.
3. Ameye T (2016) formulation of pharmaceutical interventions to the hospital, University of Picardie Jules Verne.
4. Sylvoz N (2010) Typology of pharmaceutical interventions and acceptance by prescribers: about the National Observatory of the French Society of Clinical Pharmacy. Pharmaceutical Sciences.
5. Gorce T (2013) Evaluation of the economic impact of the pharmaceutical analysis of drug prescriptions: application has two services of digestive surgery of the CHU Toulouse.
6. Hubault (2016) economic impact of pharmaceutical interventions in rehabilitation services, neurological rehabilitation services neurological, Henry Hospital Gabrielle, Hospices Civils Lyon.
7. https://lib.dr.iastate.edu/cgi/viewcontent.cgi?referer=https://www.google.co.in/&httpsredir=1&article=1131&context=ccee_pubs