

Drug Iatrogenesis: A Review

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Abstract

The Drug iatrogenesis corresponds to the pathology or any clinical manifestation undesirable for the patient induced by the administration of one or more medicines. Several studies have estimated that adverse drug reactions account for between 0.5% and 2% of outpatient consultations and are involved in 4% to 10% of hospital admissions. Thus, we will present definitions essential to the understanding of drug-induced iatrogenesis before synthesizing the different epidemiological data available in this field.

Keywords: Drug iatrogenesis; Pathology; Adverse drug reactions

Scope of the Problem

Several studies have estimated that adverse drug reactions account for between 0.5% and 2% of outpatient consultations and are involved in 4% to 10% of hospital admissions [3]. At least one-quarter of these severe adverse reactions would be reckless and therefore theoretically preventable. Among all the accidents related to drug-induced iatrogenism, the most serious risks arise from the treatment of diseases or mild symptoms, it being understood that certain adverse effects may be considered acceptable when they are Fatal or disabling disease. Conversely, mortality from non-steroidal anti-inflammatory drugs or acetylsalicylic acid (aspirin), considered to be painful or mild inflammatory syndromes, is estimated at 17,800 deaths per year in the United States and 3,000 in Britain, Whose population is equivalent to that of France. By extrapolating these figures globally, it could be estimated that about 150 patients die every day as a result of these medications, most of which are taken for self-medication. Iatrogenic mortality is considered the fourth leading cause of death in the United States, with an estimated 100 to 200,000 deaths per year Table 1 [4,5].

Introduction

The evolution of modern medicine is closely linked to advances in drug therapy. But after these advances or the hopes of scientists have been filled, or the failures of the past have given way to the most unexpected successes, new problems have arisen. Accidents related to care and medication in particular have multiplied and have begun to worry healthcare professionals, and we hear about drug-induced iatrogenism, adverse effects or even adverse drug events. These are complex, alarming and yet media-like terms.

There is no more striking example than that of the immense tragedy of thalidomide used in the 60s as sedative and anti-nauseous, especially in pregnant women and caused serious congenital malformations. This is an extreme example but there are many drugs which, misused, are responsible for accidents ranging from simple digestive intolerance to death. The causes explaining this are multiple communication errors between professionals or with the patient, poor product knowledge, misuse [1].

However, and relatively paradoxically, the first studies on this subject were carried out only at the end of the XXth century in the Anglo-Saxon world in particular. In Morocco, it will be necessary to wait until 2012 for a first survey to finally take stock of this new problem.

Drug Iatrogenicity

From the etymological point of view the term "iatrogeny" comes from the Greek iatros which means doctor and genos which means origin or causes. This term defines "which is caused by the doctor" [2]. The World Health Organization defines it as "any harmful and unwanted reaction related to the taking of a medication and occurring incidentally" and then excludes poisoning, errors in prescriptions, overdoses and self-medication.

Risk Factors and Causes

It is important to know well the medicated iatrogenic accidents and the cause of their occurrence so that they can then avoid their reiteration by putting in place methods of prevention.

Failure to communicate

At the origin of the iatrogenic accidents we find in the first place what is called the lack of communication. It corresponds to a lack of communication between health professionals. It is characterized by a lack of information exchange in the follow-up of a patient between, for example, a treating doctor and a specialist doctor [6-12].

Patient at risk

Patients at risk for iatrogenic drug use because of their status or health status. If importance is attached to the status, elderly people, infants, and children are more sensitive and therefore considered particularly at risk for prescribing medications [12].

Self-medication

According to the World Health Organization (WHO), "responsible self-medication is for patients to treat certain diseases through licensed, non-prescription, safe and effective medicines under the specified conditions of use". Self-medication may be implicated in the occurrence of adverse reactions. It is very often concealed and potentially serious. It is a "avoidable" risk factor for iatrogenicity. It can be dangerous without misuse. For example, aspirin medication or a nonsteroidal anti-inflammatory drug used as an analgesic may cause

digestive or cerebral haemorrhage. Self-medication can also be improvised and more or less blind, by using the medicines contained in the "family pharmacy" or advised by his entourage without medical advice. The danger of iatrogeny is real because very often medicines taken indiscriminately are: listed, outdated, specific indications, removed from their packaging and without notice, accessible to children. The possible consequences are an inappropriate self-Accident in children. But one of the main risks with self-medication is misuse.

Undesirable effects cause hospitalization	Undesirable effects cause death
Europe 5% [6]	South Africa 2.5%–18% [10]
England 6.5%	USA 3% a 6%
France 3.6% [7]	Sweden 3% of population [11]
Canada 7.5%	
Morocco 5% [8]	
South Africa 8.4% [9]	

Table 1: This summarizes some of the adverse events that may cause hospitalization but can also cause death.

Therapeutic Non-compliance

Poor adherence, very frequent, is of the order of 40 to 50%, all diseases combined. It is estimated that in 90% of cases this is under-consumption. Non-compliance or adherence problems can lead to various iatrogenic effects. According to a study by the National Pedagogical Association for the Teaching of Therapeutics (APNET), out of 89 cases of drug-induced iatrogenicity, 9 were due to poor compliance. Therefore, the question of adherence must be actively sought in the face of complex or multiple prescriptions, cognitive disorders, sensory deficits and social isolation. In practice, in the elderly mainly, because of the medication, it is recommended to avoid medications of comforts which are sources of poor compliance. However, sometimes, the indispensable medicines are stopped by the patient because of mild adverse effects. This is not without risk since this can lead to an aggravation of the acute or chronic pathology, these consequences can be considered as iatrogenic [12-14].

Drugs at risk

Another important cause of iatrogenism comes from the drugs themselves. Indeed, certain drugs called "drugs at risk" are frequently the cause of iatrogenic accidents:

First, drugs recently placed on the market are the most at risk of iatrogenism. Indeed, the decline is low on these pharmaceutical drugs, the undesirable effects are insufficiently evaluated or known and studies are carried out on a limited number of people [12].

In addition, there is another type of very iatrogenic pharmaceutical substances, these are drugs with narrow therapeutic margin. Indeed, the dose necessary for obtaining a therapeutic effect is close to the dose from which a toxic effect is observed, which exposes to overdoses [12].

Finally, some therapeutic classes are more at risk of iatrogenic highlighted by the EVISA study. These include: vitamin K antagonists that have the highest rate of hospitalization because of their adverse effect, according to the EMIR study [12,15]. Other pharmacological

classes such as cardiovascular drugs, anti-inflammatories, psychotropic drugs, analgesics, anti-infectives and antidiabetic agents are the most frequently involved in severe iatrogenic accidents.

Changes in patient habits

In conclusion, risky situations have been identified in the elements causing.

Impact of Iatrogenicity

Non-financial costs

Iatrogeny has many consequences: it has a human cost, a social cost and a psychological cost. The human cost is related to the direct consequences of iatrogeny on human health: death, permanent or temporary disabilities.

The social cost, on the other hand, integrates the human tragedy generated, but also the work stoppages or even the lesser performances of the victims of iatrogenism. Finally, the psychological impact includes the loss of confidence in the medicine and its caregivers of the affected patients since iatrogenia is very poorly understood by our society [15].

Economic Approach

The financial stakes for the reduction of iatrogeny are major. It is in the United States that DW Bates et al. Have carried out a medico-economic study in order to estimate the extra cost caused by the medicinal adverse effects. Based on this database, DWBates et al. Estimated that for a standard 700-bed hospital the incremental cost of unavoidable adverse drug reactions is estimated at \$ 5.6 million and \$ 2.8 million for preventable ADRs. This survey reports that the annual estimate of the morbidity and mortality of unwanted drug events would be about \$ 76.6 billion. The majority of this amount, \$ 47 billion, is due to hospitalizations for therapeutic incidents or lack of

appropriate treatment. The authors highlight the enormity of these costs in relation to the cost of diabetes which was estimated at 45.2 billion dollars in the United States. The enormous costs of adverse drug reactions in the hospital, in addition to the human lives involved, justify an investment in the prevention of this iatrogenic disorder. Moreover, these figures remain an estimate because they do not take into account surgical re-operations, drug treatments, sequelae, deaths and indirect costs such as disability or loss of earnings [14,16].

Prevention

The responsibility of hospitals for iatrogenic medicinal nosocomial pathology is increasingly being engaged. Drug-induced iatrogenesis is a public health problem and its prevention has become a priority in this field [17].

Pharmacovigilance

The objective of pharmacovigilance is the monitoring of adverse effects resulting from the use of medicinal products and "products for human use", whether they are normal uses or misuse. From an organizational point of view, Morocco has regional centers of pharmacovigilance (CRPV) located in hospitals CHU IBN SINA, Military Instruction Hospital Mohammed V, CHU Hassan II of Fez. These CRPVs have multiple missions to inform, On-demand, on the proper use of medicines, and to participate in the training of health professionals on medicinal iatrogenism.

It is a system that relies on the contribution of health professionals who are required to report any serious or unexpected adverse reactions that may be caused by a drug.

Conclusion

Drug iatrogenesis poses a serious public health problem that should be anticipated and controlled over time. The implementation and development of appropriate prevention for health professionals is essential, and the patient should not be forgotten in these measures.

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