

# Iatrogenics: Old and new aspects of the veiled face of Medicine

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The understandable tendency for institutions to give preference to broadcasting the successes of Medicine, and the tendency of doctors to announce cases in which they have made a correct diagnosis, with a good therapeutic sequence and benefit for the patients, does not mean we should not analyze cases of failure, ineffectiveness, incompetence or even cases where damage is caused. Reflecting on what went wrong, or what did not go so well, is salutary. It helps correct excessive euphoria (“hypomaniac” moments of clinical practice) and avoid repeating the same mistakes. Reflection of this nature is, therefore, an integral part of the process of professional maturation, and consolidation of experience.

Saint Teresa of Avila is said to have given the following advice to her fellow cloistered nuns: “Do not call the doctor! We are all dying of death, and he might even make it come sooner”.

In the 16<sup>th</sup> Century, this skepticism of the great Spanish mystic was well-founded. Today, nobody with a modicum of good faith would question the great progresses of Medicine, or doubt that the notable increase in the average life-span is closely related to these progresses. There is no doubt of the importance of the enormous advances in techniques and arts of avoiding, compensating or curing diseases that have been achieved over the last hundred and fifty years.

Taking a highly subjective point of view, I mention, as outstanding examples: general anesthesia; microbiology; asepsis and antisepsis; antimicrobial chemotherapy; pesticides; vaccines; blood transfusions; radiography; diuretics; haemodialysis; and intensive care of the severely ill patient.

This was the enlightened face that Medicine at the end of the second millennium turned towards us, the brilliance of which made us lower our eyes in reference. But we were not so blinded that we did not perceive the less favorable aspects of medical practice. These by no means cancel out the benefits, but nevertheless serve to show that Medicine has another, less radiant face.

I will not call this the “hidden” face, as this adjective seems malicious and liable to cause excessive detrimental confusion. I use, instead, to the description “veiled”, as it is instinctive for physicians to give a little push to place a tenuous veil over things that do not go as well in Medicine, or turn out really badly.

The most clearly-identifiable case, in this regard, is that of disease caused by acts practiced or omitted by the physician himself – iatrogenics. But the problem, nowadays, is more widespread, and often includes other professionals and a variety of institutions, as I have sought to show, in complete agreement, in this point, with the current tendency of various English-speaking Medical scholars.

The following considerations should not be taken as a statement of a negative balance of the practices of individuals or groups who work in the area of Health. The final balance is extremely positive, and for all those engaged in the fight against sickness, I hereby extend a compliment of unveiled recognition. However, I do not abdicate my right to analyze the lesser fraction, the capacity of inducing damage instead of the desired benefits.

### **Iatrogenics (in its more strict sense)**

Iatrogenics was recognized in ancient Babylon, when the “Hamurabi code” legislated on this subject around 1700 B.C., by establishing sanctions for any doctor who caused the loss of an eye or an arm, along with defining compensations for any physician who could save these same organs.

It would not be pertinent here to the address moral aspects of iatrogenics, or speak of blame, which can

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only be evaluated by analyzing individual cases. I restrict myself to the generic facts, and start by saying that causing disease is not, in any way, the same as being blamed for the fact that this disease occurred.

I do not mean to say that the curious concept of António Amaral Coutinho, that: “Science has no ethics ... the practice of seeking knowledge... is effectively amoral”<sup>1</sup> extends to Medicine. I disagree with this statement, particularly with respect to Medicine. The truth be told, Medicine is not a science, it is an activity that combines foundations gathered from various scientific disciplines, practice of an artistic nature, a global sense of public service and a very ancient and very special profession.<sup>2</sup>

In fact, it is not physicians, but rather scientists that would have to take responsibility for monstrous experiences, the perfect example of which was the “field test” for the effectiveness of the BCG vaccine, carried out around the middle of the century, in the USA. The test consisted of vaccinating half of the Indians in a reservation whose population had never had contact with the agent that causes tuberculosis, then introducing into the community some Indians carrying the active disease, recruited in urban hospitals. The result was the death of thousands of people in the non-vaccinated group.<sup>3</sup> These and other crimes against large groups of humans have nothing to do with iatrogenics. They are black pages in the history of Science, from which Medicine distanced itself and it would be good if it continued to remain so, as Medicine is not amoral, it has a moral ethic that was clearly defined in the 5<sup>th</sup> century B.C. (Hippocrates) and it is the object of careful updating, as the new technologies generated by the scientific advances lead to the emergence of other new problems.<sup>4-5</sup>

Iatrogenics has to do, rather, with acts of the practice of Medicine that result in harm. There is a rate of damage that is inevitable, starting with the limitations of “ars medica” at a certain time. When, in the 17<sup>th</sup> Century (and even later) people with anemia were bled, this practice, though harmful, was in accordance with the scientific information of the time, and the physician, or ‘blood-letter’, was acting “according to the knowledge of the day”. It is the incidence of inevitable mistakes that weighs on the doctor’s conscience.

Now, as I often say, a person who makes no mistakes is because does not admit it. The great question is the frequency with which these mistakes occur.

Really, the difference between a good doctor and a not so good one may lie merely in the number of clinical mistakes that occur in the practice of one or the other.

But, I repeat, some iatrogenics will always exist, due to human factors and other factors associated with them. Iatrogenics includes, beyond what I have already mentioned, much more than lapses, technical flaws or errors.

I have made some considerations on the form of iatrogenic disease that occurs in the relationship that involves only a doctor and a patient, more often represented in the home visit or private office than in institutionalized Medicine. I shall now go on to briefly list the factors that in my view, are predominant in this first type of iatrogenics.

### **Diagnostic error**

Due to insufficient knowledge, lack of due consideration, or excessive emphasis on signs and symptoms, restricting interpretation to the syndrome (failing to consider the cause), limitation of complementary exams, and various other deficiencies, diagnostic error is a major cause of iatrogenics.

### **Dangerous and unjustified semiology**

This is another source of iatrogenics, to which technological advances have given increasing importance. The question arises of common sense and weighing the risks against the expected benefits. However, there are sometimes unforeseen adverse effects. I recall a severe “vasovagal” crisis caused by the prick of the needle which was used for local anesthetic in order to carry out a hepatic biopsy, and another case, also spectacular, caused by the pressure of the probe of a cardiac ultrasound on the rib cage.<sup>6</sup> It is easy to think of the dangers in an aortography or in an explorative laparotomy, yet it is hard to imagine that iatrogenic acts like those mentioned could occur.

### **Breaking the news of an alarming prognosis**

Whether or not to tell the patient of a severe prognosis is an old medical dilemma. It is not always possible to predict who will react badly. Various types of depressive and other reactions that have a negative influence on quality of life are always feared. In an extreme case, the information given to an adolescent who was suffering from chronic pharyngitis, for which there was no radical cure, led to attempted suicide.

**Therapeutic errors**

The treatment may be wrong in its conception or in its execution. But therapeutic error does not mean simply a measure that is inadequate or badly performed. An appropriate act still can fall short due to insufficiency (omission as limit) or excess.

There are references to therapeutic errors that have caused prolonged suffering, with dramatic repercussions. I remember the case of an unjustified colostomy.<sup>7</sup> More invasive treatments generally lead to more spectacular forms of iatrogenics, but that is not a rule.

**Adverse effects of medications**

A distinction should be made between unforeseeable effects and those which are difficult to predict, generally resulting from idiosyncrasies (anaphylactic reactions, metabolic variants), pharmacological effects inherent to the compound in question, although of varying intensity, hence predictable (bradycardia of the betablockers, disturbances in visual accommodation of the anticholinergics), and effects of a more clarified mechanism, possibly psychogenic, related to reactions to the figure of the doctor (“white coat hypertension”) or in the therapeutic act (migraines by the ingestion of a non-absorbable resin). This latter category cannot be predicted, like anomalous metabolic phenomena (e.g. intolerance to xanthine). On the other hand, over time, numerous drugs have shown additional adverse effects that were not suspected in the early years of clinical use, which justifies the emphasis now given to pharmacosurveillance.

Thus, the defense against undesirable side effects of drugs which, in theory, are indicated and correctly prescribed, is limited, and to this one must add drug interactions, which can never be fully known in advance.

**Lack of interest or abandonment of the patient**

I am referring here to a progressive form of clinical fatigue, which is particularly common in cases that drag on, slow or incurable, with frustrating treatment, sometimes in association with uncomfortable or inconvenient characteristics of the patient’s personality.

Feeling that the doctor is no longer fully committed to the case is, almost always, devastating for the chronic patient, who often suffers reactions of grief,

vexation or revolt. Some might develop full-blown depressive syndrome. Even those who react more appropriately i.e. seek another doctor, are generally hurt.

Abandonment by the doctor, an extreme situation, may take the form of a frosty goodbye, or “discharge” from the consultation, or it may assume the more attenuated form of “passing” the patient to another doctor. All these situations are common.

**Iatrogenics of multiple agents**

We are now in territory that goes beyond the primary and fundamental relationship between the doctor and the patient, because other factors come into play that can lead to harmful results of the medical act. In other words, other actions are added to those of the physician, but there is harm, therefore iatrogenics exists, albeit in more complex form.

Of significant frequency, and also occurring in the scope of home visits or private practice, is the pharmaceutical contribution to iatrogenics. There is the case of concomitant prescription with that of the doctor, and which has negative effects, whether alone or through the undesirable association of certain compounds. There are also – and these are not rare – problems of reading, interpretation or indications, with the prescription.

I am reminded of the case of a mistaken reading of a prescription, leading the pharmacist to indicate to the patient to take six tablets per day of a diuretic, and one tablet per day of a short-action “nitrate”, precisely opposite to what was actually prescribed in the prescription (in clearly legible handwriting). Contributing to this fact was the similarity between the commercial names of the drugs (Fludex R and Flindix R). The result was hypokalaemia and severe dehydration, requiring hospitalization.

**Institutions with hospitalization**

In this context, iatrogenics is liable to result – and often does result – from overlapping actions of various professionals.

Nursing acts often have harmful effects, despite the inestimable services provided by these professionals as a whole.

An example is the “exchange of medications”. Recently, one of my patients, a non-diabetic, received a high dose of insulin which was meant for another patient, and the resulting hypoglycaemia was very

difficult to resolve. Mix-ups in drug formulas are also common – giving calcium chloride endovenously, instead of calcium gluconate for example. Errors in the mode of administration continue to occur. Recently, I once again witnessed the dire consequences of a rapid injection of potassium chloride, which should have been given in highly diluted form and drip perfusion, obviously.

It is not only with medications that iatrogenic interventions occur at the nursing level. Here are two examples that took place in different hospitals:

1. Two nurses are transferring a patient from a stretcher to a bed in the observation room, after taking him to a laboratory. The body, pushed too hard, went right over the bed and onto the floor at the other side, resulting in severe trauma injuries. This was a case of enthusiastic and excessive intervention.

2. In the observation room of another hospital “Emergency” ward, in the early hours of the morning, a harassed and demented nurse knocks over the drip stand, which falls onto the abdomen of a patient with renovascular hypertension who has just had surgery for haematemesis, and is still under the effect of anaesthetic.<sup>8</sup> Nobody notices the accident; the traumatized, postoperative patient is found dead by the morning shift. The autopsy reveals massive hemoperitoneum caused by rupture of the spleen.

This is case of omission in the intervention – lack of due care and attention. Although understandable, in the overworked environment of an “Emergency Unit” known for the overwhelming stream of incoming patients.

One of the tasks of the auxiliary nurses is to distribute food and help the least able to eat. The speeding up of this work is common, generally due to a lack of time to insist, long and patiently, which often contributes to malnutrition, dehydration and dysmetabolism. Conversely, excessive force in feeding patients can lead to other problems: asphyxia – aspiration pneumonia, mouth injuries, and fracture of the teeth. I have seen all these cases, with considerable frequency.

Hospital porters are the object of many sad stories of traumatized patients or those with fresh injuries, who speak of being transported violently, or at the very least, carelessly. Also attributed to them is the repeated loss of important complementary exams, during transfers of the patient. It seems crude to speak of this, but it can result in delays in treatment.

The poor quality of the results of diagnostic complementary exams is, very commonly, a consequence of various circumstances involving, among other factors, professional technicians of Radiology, Clinical Pathology, etc. There are many different kinds of laboratory errors, the most significant being “switching” of the results and incorrect processing.

The development of new technologies, from which emerge more semiological and therapeutic interventions, is inevitably accompanied by previously unknown forms of iatrogenics, which become intermingled with existing forms.

The place where iatrogenic agents most commonly come together is the hospital. We refer, albeit superficially, to the following:

### **A. The hospital factor itself**

The simple fact of being admitted to a hospital, normally, in wards with extensive equipment and decreased human contact (“boxes”) induces loss of environmental references, leading to feelings of unease, anguish and fear, which can upset the mental equilibrium of particularly fragile patients, causing states of disorientation or true psychoses.

The elderly, those with sensory deficiencies, neurotics, and children are at higher risk. These acute psychic states are generally associated with intensive care units (coronary unit syndrome) but may also occur in normal wards.

### **B. Complex iatrogenic interactions in hospital**

Under this title, the best example is a real case of multiple interactions in the hospital treatment of a patient.

Clinical case: A woman aged 83 years, diabetic, blind due to retinopathy and glaucoma, with mild cardiac insufficiency, manifested as fatigability and extrasystole. Normal mental state and relationships. Chronic treatment with 60-70 U/l of delayed insulin, daily, diuretic and digitalic drugs in low doses.

Patient suddenly entered acute pulmonary edema, in her home.

Her family doctor instituted first aid measures and she was transported urgently to a central hospital. Electrocardiogram showed pattern of anteroseptal cardiac arrest. The continuity of treatment resolved the acute condition. After six hours of evolution, the CPK value was 630 U/l and the MB fraction was 110 U/l. The pa-

tient was admitted to a monitoring unit, where the intern was concerned about the occurrence of ventricular extrasystoles. The family doctor gave the opinion that the ectopies are no more frequent than usual in the last 3-4 years, and fears the adverse effects of antiarrhythmic drugs. Despite this opinion, endovenous perfusion of lidocaine is instituted. The patient enters a state of psychomotor agitation, falls from the bed twice, and ends up being tied down to her bed.

In the days that followed, although she maintained good haemodynamic conditions, and following typical evolution for a non-complicated heart attack, the patient developed other psychic disorders, including disorientation, fear, and negative relationships with the hospital environment. Benzodiazepines were administered repeatedly, causing paroxysms and agitation.

On the 5<sup>th</sup> day of evolution of the heart attack, still without cardiac complications, she once again fell out of bed – the Service does not have beds with safety rails – and fractured the upper epiphyses of both humeri. This resulted in greater immobilization, imposed by the orthopedic restraint, and increased agitation. On the 10<sup>th</sup> day of hospitalization, arriving at the ward for a visit, the family doctor received the following news from three nurses on duty, who had gathered to chat at the monitor control station: “Your poor patient is dying. It’s the natural end for her. She’s exhausted...”

The resident doctor was not available, away imputing data into a computer. The family doctor observed the patient, diagnosed hyperosmolar coma by clinical criteria, confirmed by blood analyses (glucose = 1000 mg/dL; urea = 170 mg/dL; sodium = 165 mEq/L; potassium = 7.8 mEq/L) and urine (glucose = ++++; acetone = 0). The condition was resolved with hydration (water by gastric probe + hypotonic sodium chloride EV) and reinforced insulin therapy.

After recovering from the coma, the patient went through a clearer, calmer phase, but the nightmares returned, she was once again given benzodiazepines, once again became agitated, fell out of bed again, and was once again immobilized and ended up in a near continuous state of panic.

In the third week, she was alienated and suffering full-blown cardiac insufficiency, although the echocardiograph “revealed” that the fraction of left ventricular shortening was good and there were no segmentary alterations in contractility, therefore no

compensatory treatment was instituted.

The Service personnel manifested a certain aversion for the patient, who was awkward, noisy, and difficult to treat. Doctors and nurses put pressure on the family to accept her discharge, which was rejected because there were not even the least conditions for her care at home, in a situation which had become so complicated – subacute heart attack, continuous agitation, multiple fractures, decompensated cardiac insufficiency, and unstable diabetes.

Anorexia was added to the continuous anxiety, the cardiac failure progressed, nurses and nursing auxiliaries were totally incapable of controlling the patient, becoming more worn out than her. Failure to insist for the patient to eat, and verbal aggressiveness perpetuated a cycle of fear and mental degradation, which was associated with weight loss (loss of 20% of body weight by the 6<sup>th</sup> week), noticeable accelerated ageing, and increasingly severe alienation.

A clinical stalemate occurred. Despite the good evolution of the heart attack and fractures, she was growing worse, from the general, psychic, cardiac and metabolic points of view. In the 10<sup>th</sup> week, a severe infection of the respiratory airways was declared, which was treated with ampicillin, without attempting to isolate the causal agent. In the 10<sup>th</sup> week, the patient entered refractory cardiopulmonary insufficiency. The cardiac echography once again defined “good function”. The patient died of an untreatable pulmonary edema, on the 75<sup>th</sup> day of hospitalization.

Why did this clinical case turn out so badly, in a Service with high technological differentiation, in what ended up becoming more like a horror story than an example of good hospital practice?

The answers can be deduced from the narrative, and are related to an interlinking of multiple iatrogenic actions. Whatever the case, I clarify the essential items in *Table 1*.

I believe it would not be overly excessive to consider that the “cure” was worse than the illness itself, as the myocardial infarction was resolved, by multiple criteria, and even the fractures of the humeri were resolved. Thus, the cause of death was, in my opinion and in this real, concrete case, iatrogenics.

As Barros Veloso aptly states, “hospital activity is the area of choice for acting in terms of quality” and that the binomial “good diagnosis/good treatment is the concept that doctors have of quality in Internal Medicine”.<sup>9</sup>

TABLE I

## Synthesis of the case example of hospital iatrogenics of multiple agents

Iatrogenic facts	Causal mechanism	Agent responsible for iatrogenics
Acute agitation	Lidocaine EV	Doctor (dangerous/ unnecessary treatment)
Repeated falls; fracture of the two humeri	Agitation; careless surveillance	Hospital management (beds with no cot sides) nurses
Chronic agitation	Lack of comprehension, bad basic treatment; benzodiazepines	Nurses and ward assistants, doctors
Hyperosmolar coma	Poor hydration; careless surveillance	Nurses and ward assistants
Progressive cardiac insufficiency	Diagnostic error and therapeutic omission	Doctors (reliability of the echocardiography)
Devastating pulmonary infection	Omission of drainage and bacteriological study	Doctors and nurses
Untreatable pulmonary edema	Indulgent cardiac pulmonary diagnosis and treatment	Doctors

The case example I have outlined above is the antithesis, i.e. a poignant negation of the quality of care.

Given that it is a case of iatrogenics of multiple agents, it is relevant to refer here to the hospital management bodies.

In our country, like practically the entire “western world”, the sudden and rapid increase in health costs, partly determined by technological progresses and increased life expectancy, has led, among other actions, to attempts to make the hospital cost effective. Examples are the failure to authorize certain complementary tests, the subtle restriction of practical freedom to prescribe, and very relevant, the pressures to shorten the length of hospital stay. Since the start of the 1980s, that the “average stay” has become a true obsession transmitted from the management bodies of the hospital unit through the nursing auxiliaries, and all the links in between, to act with the same goal. As I have said elsewhere, “a hypothetical hospital in which it is agreed that all the patients who after 72 hours of hospitalization are not well enough to be discharged were immediately killed would have a very good average hospitalization time of just 3 days...”<sup>10</sup>

Now, much as I would like to have low levels of stay in hospital, we cannot forget that diagnosing and treating are the goals in mind, and this may take time, sometimes far beyond what is desired by the mana-

gers. There is a vast difference in the expected length of hospital stay between, say, a lobar pneumonia caused by a germ sensitive to beta-lactam antibiotics occurring in a young adult with good general health, and the investigation of obscure, undetermined consumptive condition of polysystemic expression.

Referring to the activities of section of the Medical ward in which I work, an intern with Cardiology specialty who carried out, under my direct supervision, his six-month internship in Internal Medicine, wrote in the respective report: “the average hospitalization time is 8.8 days per patient. This is a very short average period, particularly in relation to the practical conditions for obtaining complementary exams, and the advanced level of the disease in the majority of patients. The return from the benefits that can be offered to patients in the heart of an institution that is overworked often requires high levels of involvement, often of a personal nature, in order to mobilize the specialists of other diagnostic or therapeutic areas as quickly as possible”.<sup>11</sup>

So much reason in this clear analysis done by a young physician! So many times, when receiving yet another patient in a ward that is already using stretchers in place of beds, I forget the fundamental questions that I should ask myself – what is his illness, what treatment will he need, what result would I manage – to think in anguish of how soon I can discharge him and what complementary exams

I would need. The point is, beyond the unworkable tests, there are other exams that have huge waiting times (the Schilling test, and scintigraphs with certain radioactive isotopes, to give but two examples).

The management of this conflict, of this type of self-censorship of response to the huge pressures for shorter hospitalization times, is currently the torture of the internist committed to the practical function of making the diagnosis and treating the patient. He needs wings in order to make time fly, with swift movements to laboratories and institutions, requesting that the scheduling of an exam or other technique be anticipated, that they do him the favor of carrying out the test, that the “kit” is opened, that the technetium is used, with the purpose of gaining time in the “average length of hospital stay” parameter, and making a bed available for the subsequent problem.

In the end, one ends up losing a lot in opportunity for reflective and careful study of the patients, as well as the availability for teaching colleagues.

The partially invisible chain of political and economic power, therefore, should not be exempted from its essential role in the complex mechanisms of hospital iatrogenics. Barros Veloso (op, cit) speaks of “a possible tension between hospital administrators with an economicist training, and doctors who are essentially concerned with treating patients”. That’s right, economics, in the sense of saving resources, and clinical practice, do not often form a happy partnership!

Bear in mind, above all, the fact that hospital admission times that are forcibly cut short can result in an illusion that ends up expensive. Due to the consequences of degrading care, which is not rare, and the frequent re-admission of patients whose situation has grown worse. The spectrum of iatrogenics, now wider in understanding and extension, hovers above all this.

Nowadays, the adjective “iatrogenic”, within institutional care, extensively prevails over the adjective medical.

### **New problems**

The technological progress made possible by the evolution of Science has led to the formulation of optimistic promises.

Around 1880-90, it was hoped that a microbe would be discovered as the causal agent of every disease. This “fever” of bacterial etiology has gone

in cycles. Thus, after a hundred years (1985), B.J. Marshall ingests a broth of *Helicobacter pylori* culture and submits himself, days later, to an upper digestive endoscopy, attempting to fulfill the third postulate of Koch, essential to demonstrate that the germ in question is the agent of peptic ulcer.<sup>12</sup> The dramatic nature of the experiment bore fruit, to the point of leading the National Health Institute of the USA to recommend triple antimicrobial therapy for ulcerous disease,<sup>13</sup> but the fact is that voices of authority began to be raised, doubting that the *Helicobacter pylori* was proven to be the cause of gastric and duodenal ulcerous disease, and fearing the potential iatrogenic effect of the association of chemotherapeutic drugs in an ulcerated digestive tract.<sup>14</sup> In fact, Marshall presented some phenomena of gastritis, but did not develop any ulcer whatsoever. And later experiments that attempted to induce peptic ulcer by the administration of a suspension of *H.pylori* failed.<sup>15</sup>

Around 1905, it was announced that roentgen therapy would cure all forms of cancer. As we all know, it has a valuable place in the treatment of malignant tumors, but this role is far more modest than was enthusiastically promised.

In the 1920s, radioactivity, whether natural or artificial, once again announced miracles, as the cure of many diseases and the fountain of youth. The “killing” caused by the elixir “Radion” was a great disappointment, and “Água de Luso” itself removed the “highly radioactive” indication from its labels ...

At the end of the 1960s, the WHO announced that the cause of arterial hypertension would be discovered in 1980. We are still waiting!

Large trials and meta-analyses of medium sized trials promise today the control of cardiac insufficiency with drugs of various groups (depending on the clinical trial in question). They also promise to “clean” atheromatous arteries with other drugs or with LDL apheresis. We will see, but I have my doubts...

There is nothing more disappointing, in this matter of health promises, than the “targets” of the WHO – “Health for all by the year 2000”. I think that this clearly-outlined table of objectives, served by interesting investment programs, faces, month after month, a world that is becoming increasingly less healthy.

It is not necessary to mention extreme cases, like Sudan, Ethiopia, Mozambique, India, the Caucasus,

the Balkans, or Haiti. Simply do the rounds of Pote d'Água, or spend the night in the metropolitan centers and train or bus stations of the large cities, to understand: what can we expect, less than five years from the year 2000, is hunger, violence, disease and misery for large numbers of people. Even with new and sensational progresses in medical technology, and even if the resulting iatrogenics is proving minimal.

For the most gullible, swayed by so many promised marvels, some "alarm bells" have already starting ringing:

- The strong re-emergence of tuberculosis;
- The acquired human immunodeficiency virus;
- The defeat/failure of preventive projects – the increase of pollution, urban degradation and the suburban ghettos, the disintegration of the traditional family leading to semi-abandonment of children, rejection of the elderly and segregation of patients with chronic illnesses.
- The absolute failure to control the dissemination of drug-dependence.

But technological enthusiasm does not pay attention to these unimportant realities, and continues to entangle itself on the net of the "great illusions": the hype of the manipulated statistics, causing the results of certain evaluations to tilt in favor of the interests at stake, through complex methodological ruses, or relatively simple choices, such as deciding whether the results will be expressed as absolute values or percentages.

This is the case of the study of a drug in congestive cardiac insufficiency.<sup>16</sup> 1284 patients were treated with conventional measures and a placebo, while another 1285 received the same basic resources and a new compound. After 3.5 years, 251 deaths had occurred due to cardiac insufficiency in the placebo group, and 209 in the group that used the new drug.

It appears that anybody with a modicum of common sense would conclude only that death by advanced cardiac insufficiency is high under any drug regimen. But the statisticians who analyzed the results described effusively praised them, explaining to us that the new drug reduced the risk of death by 22%. It is the same, but makes us have a kind of optical illusion – almost a quarter of lives saved, one could say in amazement. But what lives, what comparability of cases, in which time and at what cost?

It matters not. The next step will be the paragon in the Press "New Drug Saves Lives of Cardiac Patients".

It is a new fallacy; it deals not with a portion, but the whole (the Lives of Cardiac Patients).

This leads to an absolute difference between 251 and 209 fatal cases! It even seems as though nobody has died with the new drug...

It is understood that the most enthusiastic (and virtually the one who has contributed the most) of those who revere the evaluation of medical drugs by statistical methods, Alvan R. Feinstein, has reached the point of regretting his work, such is the distorted way of looking at the object.<sup>17</sup>

The question of statistics is linked to another of the "great illusions", applied cybernetics, perhaps it would be better to say "badly applied".

Computers and their databases have led, through the hands of many overly optimistic people, to things like computerized diagnosis and teleconsultation.

I should clarify that I have no doubt of the fruitful future applications of cybernetics in Medicine in the near future. However, what the computer gives us, at present, is essentially a list (or various lists) which require great caution in their interpretation. This is not so much due to poor technique, but because the introduction of data leads to major problems. Thus, in a report from the statistical office of a central hospital,<sup>18</sup> I found, in the chapter on the nosology of hospitalized patients, various anti-mathematical "gems" of which I give an example here:

Total patients = 2196; average hospitalization time = 12.63 days

Total men = 1142; average hospitalization time = 12.42 days

Total women = 1054; average hospitalization time = 12.62 days

Thus, the average hospitalization time of the whole set is higher than that of any of the subsets it covers. Obviously this is impossible!

The most recent complementary methods of direct visualization and imaging also relate to this theme of "great illusions" and involve new causes of iatrogenics.

Nearly all of us have had the experience of tumor imaging which, in fact, did not exist, the "tacomás" of the tasty medical jargon.

It is evident that the diagnostic progress achieved through the techniques in question is very great; no internist would want to go back to the time when they did not exist. But I am speaking about iatrogenics, and this relates to individual cases.



A laparotomy springs to mind, practiced on the wife of a well-known and respected colleague, for resection of a uterine tumor diagnosed by echography, and which was not actually there, as the dumbfounded surgeon was able to observe.<sup>19</sup>

I also remember the patient with megaloblastic anemia, in whom upper digestive endoscopy had diagnosed cancer of the stomach. As it did not make clinical sense, a repeat exam was requested, in which entirely normal gastric appearance was visualized.<sup>20</sup>

Finally, I recall the long series of patients who lose time and peace of mind, and waste their own and public funds on annual (or even every six months) echographic “surveillance” of innocent simple cysts of the renal cortex.

I do not mention all this with the perfidious intention of criticizing clinical errors and technical failures. We all make mistakes. Their level of guilt is highly variable and the judgment of blame is not mine to lay, as I stated earlier. I mention them merely as examples of caution that must be taken in the interpretation of the findings of the new imaging visualization techniques. In reality, the above is an example of a useless laparotomy, a false sentence of advanced cancer and an “abuse” of considering as illness, with expensive regular evaluations, a harmless phenomenon like a cortical kidney cyst. There is no point discussing the iatrogenic implications, as they are evident.

### Future risks

Some medical practices, which just a few years ago seemed potentialities in a distant future, are now a reality in exponential growth, or the next door to be opened in the corridor of technology. Assisted reproduction and genetic manipulation are two examples of these, respectively.

No one else has been capable until now, of exposing the concerns that these huge advances have created like Jean Bernard was.<sup>21</sup> Adopting a preferentially moral and legal approach, the great doctor, scientist and French philosopher did not fail to express emphatic apprehensions about emerging forms of iatrogenics.

Personally, what worries me more is other questions, which are in the present and tend to worsen in the immediate future.

### A. Political and economic questions

Throughout the western world, we have seen a ten-

dency for governments to cut back on expenses and costs of Healthcare. An example is the case of the United States of America, where Congress has set the target of gradually eliminating the deficit by the year 2002. For these, substantial cuts are forecast in the budgets of the Medicare (the elderly) and Medicaid (the poor) systems, which cost US \$300 billion a year, corresponding to 20% of the State budget. The forecast restrictions should total US \$410 billion over seven years. For this, a “package” of measures has been prepared, which includes: reducing payments to all service providers; increasing charges of beneficiaries, and transferring a substantial number of those beneficiaries to private systems.<sup>22</sup>

The virtual application of a project of a similar nature in our country would be a social tragedy. Despite outlining some measures which, though less drastic, point to the same goals, using analogous routes, it is to be expected that we are far from imitating the restrictive North American project.

Another political question, this time of a generic nature, is the well-known government tendency to invest in undertakings that give quick profits, due to their visibility – huge public works, showy war equipment, promotion of genius scientists that are easy to show off as “banners”. Long term investments that hardly appeal to the nationalist pride, like programs for prevention and treatment of major current diseases, support for the elderly and disabled, and real improvements in education and reinsertion of the marginalized sectors of society, are generally relegated low priority status. And this is generally true everywhere, with some rare and honorable exceptions.

### B. The decline of the large hospitals

Hospitals are institutions which essentially cure, and rarely leave the third line of the preventative chain. Those who obey the profile of the “general central hospital” are necessarily large, by imperative need, polyvalent, costly by all means, and difficult to manage.

The economicist line of thinking in relation to hospital management appears to be poorly adapted to the conditions of our country. I recognize that I am expressing a controversial view, but we have to accept that our population is mostly poor, with growing numbers of elderly, and that the qualities of the Portuguese hospitals are deteriorating. What

we see is the relative reduction of technical staff, outdated equipment and degradation of structures. The doctors, who are getting older, are paradoxically overburdened by the reconversion of the career of many of their colleagues, who hope for the peace of a technical practice, and the insufficient renewal by new doctors.

The plans and tactics of new managers are focused on the saving and demonstration of small, luxury units where state-of-the-art semiologies or treatments are cultivated. The basic and agonizing problems of the healthcare system in hospitals have been almost systematically set aside, revealing the obvious: someone who is not a doctor cannot fully understand the problems of clinical practice.

If there is any doubt as to the decline of the hospitals in recent years, I recommend an enlightening visit to some external consultants of the Hospital de Santa Maria, overburdened and with offices shared by various doctors, seeing many patients at the same time. Even more elucidative would be a visit to the Medical wards where, in almost gothic conditions, one can find doctors with careers spanning twenty or thirty years diligently attending to severely ill patients piled up in obsolete beds, or even on stretchers. In some sectors, the oxygen used to mitigate dyspnea is bottled in rusty tanks, as no "tubing" is in place yet for the oxygen. Pipes over fifty years old drip the water that is needed to combat the swarms of microbes and undesirable insects. Here and there, the discordant sound of modernity rings out, with a heart monitor, though the monitor is rarely looked at, since there are shifts with a single nurse in charge of twenty or thirty patients.

Naturally, this situation will grow still worse if nothing is done to reverse the gradual devaluation of the hospital institutions. This will be prejudicial to public health. The prestige of the hospitals, among the population and among the medical profession, is already severely depleted.

### C. The decadence of clinical teaching

Although certain decentralizing measures of clinical teaching are desirable, particularly some expansion of the Health Centers, the hospital is, nowadays, the ideal place for medical training. I believe that there is no point explaining why, as the obvious needs no explanation.

It so happens that the healthcare suffocation of

the aged, and decreased staff that are still committed to clinical practice, their multiple tasks in various functions, some of them undifferentiated (scheduling complementary exams, registering electrocardiograms, taking blood samples, filling out hundreds of forms), robs them of the time and opportunity for teaching.

If the decrease and over-occupation of the hospital doctors continues in this way, as well as the cutting back of support teams (technicians, secretaries), teaching in clinical medicine will get inexorably worse. New generations of doctors will be the ones who will lose out, and clearly, iatrogenics will increase exponentially.

### D. The specialization of Medicine

I refer here to super-specialization. The excessive focus of activity of a majority of doctors in very restricted areas of pathology, sometimes confined to a gland - pancreas, a disease - sarcoidosis, or a technique - cardiac haemodynamic, leads to the risk of taking the part as the whole, dealing with abstract concepts, instead of people. This premature specialization, at the very least, makes the problem worse.

It is essential, to safeguard the medical profession as a whole, with the various specialties emerging from a solid "common root" in terms of training, with characteristics of Internal Medicine<sup>23</sup> and, virtually, that the specialists carry out regular cycles of hospital recycling.

It is also very desirable for the basic education to contemplate the common man with the notion of the benefit of having his doctor, who has the responsibility of protecting him, when in apparent good health, studying him and treating him in illness, requesting the opinion of specialists, when he believes this is necessary.

Seeing a neurologist when you have a headache, consulting the urologist when you have a case of dysuria, or going to the rheumatologist for back pain, doesn't make sense, at least not as a first resort. Headache may be symptomatic of a chronic infection, dysuria may be due to a gynecological pathology, and back ache may be an epiphenomenon of a hemolytic anemia, by way of merely metaphoric examples. Enlightened specialists will return the patient to the family doctor or internist. Specialists who are more polarized in their monographic interests may lose time investigating parts, disintegrated from the

individual's overall reality.

To prevent this new and growing form of iatrogenics, two solutions are outlined: the increase of the “common branch” and the affiliation of the patient with the doctor, effectively an assistant, “advocate” of his patients and “manager” of the multiple resources to be mobilized, as my master, J. Nogueira da Costa pointed out many times.

## Conclusions

Iatrogenics today is much more than harm caused by the doctor during his or her professional practice.

We cannot fail to distinguish this primary iatrogenics, which has always existed, emerging from the relationship between a patient and a doctor, from a newer, institutional iatrogenics, which is much more complex, and in which the genesis of the harmful act starts in the Health Policy of the Country, is linked to the form of management of the healthcare institutions and culminates in convergent actions of intrinsic factors of the building, or is related to its segments and equipment, together with the actions and omissions of multiple professionals, including doctors.

The continual progress of technologies and the specialization of Medicine into specialties and subspecialties have also been accompanied by a growth of iatrogenic incidences, alongside the major, undisputable benefits.

It is in the hands of the individual's General Practitioner, who holds much of the solution for reducing the rise of iatrogenics, recommending greater promotion of the practice of linking each person to a doctor, at an early stage, which presupposes innovations in the field of teaching programs. The doctor will accompany the vital course of each of his patients, striving to preserve their health, combating any illness that affects them, and avoiding iatrogenics – meaning, of course, the iatrogenic cases that depend on him and are controllable, but also those which are seen as a result of the actions of others, in particular, resulting from the complicated web of institutionalized healthcare, the paradigm of which is the hospital.

Hippocrates said: “Life is short, [the] art [of Medicine] long, opportunity fleeting, experiment treacherous, judgment difficult.” I believe this statement includes a subtle warning on iatrogenics, for which reason I use it as my full stop, in homage. ■

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