DOI: 10.5327/Z167944352019175S1007

Semi-plenary #3

IATROGENESIS IN OCCUPATIONAL MEDICINE: MYTHS AND TRUTHS

Paulo Rebelo[1,2]

[1]National Association of Occupational Medicine; [2]International Occupational Medicine Society Collaborative. Rio de Janeiro, Brazil. e-mail: <paulorebelo@terra.com.br>

The human life expectancy increased significantly in the past 100 years, as a function of changes in the main causes of illness and death. In the past, the main threats to life were posed by infectious and parasitic diseases, which mainly affected infants and children. In turn, noncommunicable diseases prevail now, affecting particularly adults and older adults.

The demographic picture is on the eve of a dramatic shift, whereby the number of people aged 65 or over will be larger than that of children (under 5)[1].This situation is due to the decrease of the fertility rate and increase of life expectancy, mainly as a result of new health technologies. Yet, the latter might be associated with iatrogenesis, namely, diseases, adverse effects or complications caused by or derived from treatment.

While the term iatrogenesis commonly alludes to the consequences of physicians' actions, it can also be applied to other occupational groups, and might concern healthcare providers or the health system in general. This because iatrogenesis might be related to the growing use of advanced diagnostic technology, financial incentives, a medical culture that encourages greater use of tests and treatments, limitations in the evidence that obscure the understanding of diagnostic utility, non-beneficial screening and broadening of disease definitions [2].

Unfavorable impacts on patients might involve their physical (iatrosomatopathy) or psychological (iatropsychogenesis) condition. Despite their frequency, many iatrogenic effects are considered to be the price we must pay for progress in medicine[3].

According to some estimates, 12,000 deaths occurred from unnecessary surgery, 7,000 deaths from medication errors in hospitals, 20,000 deaths from other errors in hospitals, 80,000 deaths from hospital-acquired infections, and 106,000 deaths from non-error, adverse effects of medications in the United States in 2000. 225,000 deaths/year in total, which make iatrogenesis rank third as leading cause of death in the United States, after heart disease and cancer[4].

One hundred forty and eight people die in Brazil every day due to errors in public and private hospitals. The total number of these deaths was 54,076 in 2017[5].

There are no corresponding data for occupational medicine. While lower rates are expectable, as a function of the procedures involved, cases might occur due to misinterpretation, which might be categorized as of medical or Bayesian nature[6].

The best way to reduce iatrogenic effects is to establish preventive measures. However, clearly identified methods and the corresponding assessment of efficacy are scarce. Then, while patients are afraid of the consequences of treatments, they are often the first to demand new technologies, even when assessment of risk is not yet complete. Failure does not equate to wrong outcomes, but to wrong interpretations.

Iatrogenesis is the result of error caused by answering the following question: "The test result was positive, what are the odds the patient has the disease?" In other cases, error is due to the administration of a test to an individual from a subpopulation for which the test was not designed.

The notion of preventable iatrogenesis includes relevant actions to avoid drug-related iatrogenesis focusing on three aspects: medications, patients and prescriptions. According to this proposal, prescriptions and the therapeutic approach to a case should be assessed within the context of medical knowledge and the risk factors exhibited by each individual patient[7].

Another relevant topic associated with iatrogenesis is overdiagnosis, which is defined as the diagnosis of a condition that would not cause symptoms or harm to a patient if left undetected. Overdiagnosed cases are not cases of disease, but something that is not a disease is diagnosed, it is a diagnostic exaggeration, which, however, might lead to undesirable procedures and consequences[8].

Overdiagnosis might occur in occupational medicine and primary care prevention programs, with long-term implications. For instance, overdiagnosis of indolent breast, prostate, thyroid or lung cancer, chronic kidney disease and depression, might lead to overtreatment (with its associated toxic potential), anxiety and depression related to diagnosis and labeling or financial harms.

The efforts to reduce overdiagnosis are impaired by unawareness of this problem among both physicians and patients and confusion in the nomenclature, which makes overdiagnosis be frequently mistaken with related notions. A clear terminology would facilitate the physicians' understanding of this problem, as well as the growth of the evidence regarding its prevalence and downstream consequences in primary care. It is expected that international coordination regarding diagnostic standards for disease definitions will also help minimize overdiagnosis in the future[2].

Prescribed medications can cause side effects and adverse reactions and also interact with other drugs. Factors such as age, illness and idiosyncratic reactions might result in drug intolerance in some cases[9].

In their prescriptions, healthcare professionals often use abbreviations of the name or dose of medications, route of administration or frequency of intake. If on the one hand this facilitates their work, on the other it might result in doubts and errors, which might interfere with the communication among healthcare providers and cause serious errors. This situation might be made worse by illegible handwriting and abbreviations having more than one possible meaning, with consequent increase of the odds of error. A study on medication errors performed at four university hospitals in Brazil found that in three of them 80% of prescriptions contained abbreviations. Another study detected 70 different types of abbreviations among 4,026 prescriptions, to a total of 133,956 (33.3 abbreviations per prescription, on average)[10].

There are few data on non-hospital iatrogenesis, which points to the need to analyze the information in medical records[11].

Iatrogenesis remains a constant challenge for all the members of health teams, who should be aware, since the very onset of their career, of their responsibility toward patients, particularly their rights and well-being. Physicians, as the acknowledged leaders of healthcare teams, have the main role in this respect. Their training and involvement in supervising and monitoring the members of their teams should reflect their acknowledgment of such responsibility[12].

Health education of society, versatile training of medical personnel and an efficient health system are considered crucial to minimize iatrogenic influences on the health of patients. However, according to reports from UK and USA, eliminating iatrogenesis is difficult and practically impossible[3].

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