

Rational Use of Microbiological Diagnostic Investigations: A Mini Report of a Cuban Current Experience

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ABSTRACT

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Introduction

Microbiological diagnostic investigations constitute the examinations, techniques, tests, analytical procedures, which are carried out by the microbiology laboratory staff in a standardized manner to quickly and accurately offer information regarding the presence or absence of a microbial agent causing an infectious condition, as well as the results related to *in vitro* resistance tests against antimicrobials [1]. Its application varies depending on the clinical syndrome and the type of agent being considered, so its optimal use, in the author's opinion, implies the dynamic interaction of three factors: the existence of quality medical care, expertise in the laboratory execution and the effective doctor-laboratory staff relationship. It is the responsibility of the attending physician to deal with patients with clinical pictures suggestive of an infectious disease, to make presumptive diagnoses, indicate microbiological diagnostic investigations and initiate treatments. He requests how and when to collect the samples, informs the laboratory of the patient's history of antibiotic therapy and interpreting the results.

The benefits of the rational use of the microbiological resource can be expressed in indicators such as: accurate diagnoses of infectious diseases; the right one treatment of individual patients; microbiological surveillance and control; increased quality of life; environmental protection; optimal use of material and economic resources; which today constitutes a social task not solved by the medical sciences, since infectious diseases remain the leading causes of morbidity and mortality throughout the planet [2].

Teaching-learning of microbiological diagnostic investigations in the Medical career in Cuba, it is mainly consolidated through the Medical microbiology and parasitology subject, included in the Diagnostic Investigations discipline. However, in a study carried out previously by the authors at the University of Medical Sciences of Holguin [3], it was found that the dynamics of the teaching-learning process of the subject does not favor students to apply the contents related to the rational use of microbiological diagnostic investigations to their experiences. Consequently, the aspirations

reflected in the professional model, regarding to the resolution of problems of the profession in which biological agents intervene by applying rationality, are not specified from the treatment of the objectives of this matter. In the same research, numerous limitations were determined regarding the degree of student application of actions that contribute to the rational use of microbiological diagnostic investigations in the setting of educational activities at work, related to: the realization of the presumptive diagnosis of a disease infectious in both second and sixth year students, with a greater contribution provided by those in the first group; problems in the optimal identification of the required microbiological diagnostic investigations; the orientation of the sample collection; communication with the patient and laboratory personnel; and the interpretation of laboratory results [3].

Regarding to the topic discussed, it should be noted that the economic planning of our country prioritizes the consolidation of the teaching and use of the clinical and epidemiological method so that they contribute to the rational use of technological means for the diagnosis and treatment of diseases [4]. In this sense, Martínez Y [5] points out that the optimal use of technological resources during the diagnosis of nosocomial diseases, favors the consequent reduction of the economic burden that they represent for hospitals, at the same time that it contributes to the improvement of the quality of life of patients. The above agree with the report of Djulbegovic B, Elqayam S and Dale W [6], who assure that current medical care continues to be characterized by poor results, largely due to the excessive/under use of health and medical services resources. According to the findings of the study carried out by previous researchers, suboptimal decisions are considered the main cause of death and are responsible for more than 80% of health expenses.

Final Considerations

It is considered that the correct action, exercise and rationalization, is the main tool of science to solve specific problem situations. A deep analysis of the current facts, leads to the identification of theoretical and methodological limitations, as an element that reduces the possibilities of assuming a systematized and contextualized process of professional training of doctors regarding to the optimal use of microbiological diagnostic

investigations. In this sense, the scant didactic treatment given to the logic of the formative dynamics in this particular case is also considered a significant weakness. In order to solve this reality, it is essential to improve the epistemological basis of the teaching-learning of the Medical microbiology and parasitology subject with the aim to promote the optimal use of the organizational forms of teaching and the use of methods and means that favor the training of a professional at the height of contemporaneity.

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Competing Interests

The authors do not declare competing interest.

Author's contribution

All authors have actively participated in the writing and critical review of the final version of the scientific text that supports the present research.

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