Rev Mex Med Forense, 2019, 4(3):62-70 ISSN: 2448-8011

Medicine as a Forensic Science

Review Article

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Received: March 20, 2019, Accepted: April 29, 2019, Published: September 15, 2019

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SUMMARY

Introduction. *Medicine is a profession whose primary objective is to seek health and prevent or cure diseases of the human being; physicians apply the scientific method through propaedeutics and semiology, integrating a diagnosis to establish treatment; for that reason, this profession is considered a science and an art. Forensic medicine is a medical specialty that applies medical knowledge for the administration of justice; however, it has been confused with legal medicine, which is in charge of the study of the rules that regulate the medical practice, causing a mistaken idea that with time and custom has become real, without being so.*
Objective. *The purpose of this article is to review the meaning of the concept of Forensic Medicine, the field of*

competence of this medical specialty and the description of its functions.
Conclusion. *Medicine as forensic science, is responsible for assisting the authorities in an impartial, objective and scientific way; it uses the scientific method when carrying out its certifications and opinions, which constitute data and means of proof for the agent of the Public Prosecutor's Office to integrate the Investigation Folder.*

Medicine

Medicine is a profession that is exercised to know aspects of the human organism such as health and illness; it is meant to help conserve health and prevent or cure disease; it contributes to the psychosocial well-being of the human being, using the knowledge learned during training in the medical career, research, experience and clinical judgment acquired in practice; likewise, it is considered a science, because its knowledge is objective and verifiable; such knowledge is obtained through observation and experimentation, formulation and verification of hypotheses, as well as through the use of a method for the systematization of knowledge; this is how it is defined the “scientific method”, which in the etymological sense means "Path to knowledge". The purpose of scientific research is to generate knowledge in a systematic, orderly, methodical, rational and critical way. This method is based on the careful observation of phenomena, the generation of hypotheses, the implementation of an experimental strategy and, where appropriate, the establishment of a scientific theory, a scientific paradigm [1].

Physicians apply the scientific method through propaedeutics and semiology. The first is the "ordered set of methods and procedures that physicians use to obtain the symptoms and signs present in the patients and, with them, make the diagnosis." It includes the anamnesis and the physical examination. Semiology is defined as "the study of signs in patients to identify alterations caused by diseases; it is a section of the general pathology that deals with the study of the signs of diseases "[2].

The research process begins as soon as a person (patient) appears and poses a problem. It is then when we proceed to collect information about the previous knowledge on the subject (personal history, current condition); this information must be analyzed and used as a support element for the work. The success of the documentation stage (clinical history) will depend on the training of the physician in the search and retrieval of information. The application of documentary techniques requires specific training that the physician does not always have.

In the experimentation stage, the data will be collected, analyzed and interpreted. Communication constitutes the culmination of research work. In order for it to be carried out in an adequate manner and to faithfully express the content of their work, it must be the result of a correct action regarding text design, respecting the structure of the scientific work. The writing techniques use the appropriate rules of syntax, as well as the application of the rules of oral

communication; this is an essential requirement for the achievement of the researcher's objectives: to contribute to the growth of scientific knowledge [3].

Physician must adequately structure the clinical file with a satisfactory writing and writing so that what is communicated is clear, objective, orderly and precise.

So far we have talked about the art of medicine as a human faculty that must be based on science. Medicine, however, is not an exact science. It is an applied science, and its practice is an art. "The practice of clinical medicine with its daily judgments is both science and art. In the practice of clinical medicine, art is not simply a part of the medical humanities, but is integrated into medicine as an applied science". Medicine is both an art and a science, both interdependent and inseparable, like two sides of a coin; the importance of the art of medicine is that we have to deal with a human being, his body, his mind and his soul.To be a good medical professional, one has to become a good artist with sufficient scientific knowledge [4].

Once known the field of competence of medicine and the method that as a science continues in its exercise, we will address the issue of forensic medicine is a medical specialty.

When the forensic term is adjudicated, medicine becomes involved in an area that departs from the original context of its competence; sowever, it acquires a very important role in the field of law enforcement; all the knowledge acquired from the basic topics in the medical career, as well as those obtained from medical specialties, are applied by specialists in forensic medicine in their certificates and opinions to solve the questions that arise to the authority during the legal study of cases; in some crimes (criminal types) such as in cases of injuries, homicides, rapes, torture, etc., medical knowledge is necessary.

What does it mean and what are the attributions of Forensic Medicine and Legal Medicine?

It is important to make some observations about the definitions of forensic medicine and legal medicine; an analogy has been established between both specialties of medicine, a fact that is aberrant because it causes confusion for those who listen to an argument that supposedly relates to one of the two specialties but that makes mention of the other's sphere of competence. This situation is frequent in the medical language because in articles in the English language forensic medicine is indistinctly defined as legal medicine; this generates badly used concepts and linguistic vices, which are generalized and adopted in the Spanish language.

The influence of English can be controversial. One of the problems in English to Spanish translations is that a word can have several non-replaceable similarities in Spanish; during its translation, the almost similar but incorrect option is chosen. Sometimes we find ourselves in incredible situations because of the obviousness of mistakes; for example, in English teeth are referred as "tooth organs", a phrase that, when translated, determines that tooth is an organ; the definition of organ is that of "a set of tissues that perform a function", being that the tooth is a component of chewing and the teeth cause a physical effect in food [5].

The number of scientific publications in English and the fact that most of the most prestigious medical journals are written in that language are undeniable; this has caused it to be recognized as the means of scientific communication in the field of medicine. The good use of language, especially of the scientific type, is an obligation of a researcher and writer of medical-forensic texts, because errors can lead to inaccuracies in the meaning of what is intended to be transmitted. Such is the case of the phrases Forensic Medicine and Legal Medicine, reason for which the following reflections are transcribed:

Hacken (2015) states that the traditional approach to terminological definitions imposes restrictions that are not realistic, because the linguistic meaning is based on prototypes. Both terms and their definitions belong to language, so there is no way to escape the limitations that language imposes on definitions. When looking for relevant studies related to the language of forensic medicine, we note that investigations of this language are very scarce and that there are almost no bilingual dictionaries for this area. Given that most of the studies that we find promote the terms "legal medicine" and "forensic medicine", we believe that before delving into the language of legal medicine, it would be useful to have a general definition of these terms.

The query of the dictionary is determined by insufficient knowledge or by the ignorance of the meaning or meanings of a word. The process of consulting the dictionary is the first stage of lexical learning, a concept that introduces a relative freedom of knowledge: passive knowledge that consists of understanding (lexicographical definition), interpretation (concrete and correct labeling of an extra-linguistic reality) and active knowledge, which is reflected in the proper use of the unit in various linguistic contexts. after looking for the terms, we note that the Medical Dictionary for Health Professions and Nursing provides an entry only for "forensic medicine" with two brief definitions, which are not sufficient to define the study area for a wide audience; instead, it specifies that "legal medicine" is synonymous with "forensic medicine":

Similarly, the Merriam Webster dictionary provides a single entry for "forensic medicine" with a definition that specifies the synonymy between "legal medicine" and "forensic medicine": a science that deals with the relationship and application of medical data to legal problems, also called "legal medicine". For a non-specialist, the information provided by the dictionaries may seem confusing. The consequences of confusion can be catastrophic and, therefore, it is important that we share the same vocabulary. Lawyers generally interact with the medical profession and if lawyers understand something other than a word than a doctor, then the whole object of the exercise would be altered. The word "forensic" derives from the Latin "forensis" which means "forum", that is, the meeting place where people with public responsibility discussed civic and legal issues; forensic medicine deals with the application of medical knowledge in the administration of law and justice [6].

Bardale [6] explains that "Forensic medicine and medical jurisprudence are not synonymous terms. Although they are related to each other, they have a different meaning. Forensic medicine deals with the application of medical knowledge in the administration of law and justice. " The

doctor is expected to use his medical knowledge to resolve civil and criminal matters. For example, if the police take a person to the doctor with an alleged history of alcohol consumption and disturbance of public order, the doctor is expected to examine the person and decide whether he has consumed alcohol and, if so, if he is under its influence or not. Subsequently, the forensic doctor must issue a certificate. Other examples include the application of medical knowledge in injuries, presumed murder, presumed sexual crimes, pregnancy and childbirth, etc. On the other hand, Legal Medicine deals with the medical aspects of the law. The term medical jurisprudence (juris = law, prudentia = knowledge) deals with the legal aspect of medical practice. This branch deals with the legal responsibilities of the doctor while practicing medicine. For example: having knowledge of the Termination of Medical Pregnancy Act, medical malpractice, consent, medical ethics, professional misconduct, doctor-patient relationship, doctor's rights, etc. Physicians must appear before the Court of Justice to answer cases related to medical legal cases [7].

It can be concluded that forensic medicine and legal medicine are different in their definition and, therefore, in their field of competence; it can be determined that the term medical jurisprudence is synonymous with legal medicine, since it also deals with the legal aspect of medical practice, according to the following definition: "legal medicine is the knowledge of the law that delimits the ethical exercise and legal medicine for the correct decision making in clinical medical practice "[8]

What do the terms Forensic Medicine and Forensic Science mean?

Traditionally, the definitions of forensic medicine or forensic science imply that they have as their main field the investigation of criminal cases [9].

The word "forensic" derives from the Latin adjective "forensis" which means "from or before the forum". During the time of the Romans, a criminal charge meant presenting the case to a group of public persons in the forum. Both the person accused of the crime and the accuser would give speeches based on their version of the story. The individual with the best argument would determine the outcome of the case. Basically, the person with the best forensic skills would win. This origin is the source of the two modern uses of the word "forensic", as a form of legal evidence and as a category of public presentation [10].

The term forensic science combines the words "science" and "forensic", which implies a set of objective and verifiable knowledge that are obtained through observation and experimentation, the formulation and verification of hypotheses; it is characterized by the use of an adequate methodology; the forensic term means a discussion or public debate that in modern times applies to the courts or the judicial system; therefore, forensic science would be the practical application of science (scientific methods and processes) to issues of debate to solve crimes.

Forensic medicine represents a medical specialty within the education system in Mexico. It is a forensic science in which medical specialists in this area

carry out certifications and opinions applying all branches of medical knowledge for the purposes of law; therefore, its limits are the requirements of law; therefore, it can be said that forensic medicine is the medical knowledge applied in the investigation of crimes for the administration of justice [11]; it is mainly concerned with the examination and evaluation of people who are suspected to have been affected in their body by an external cause, such as injuries, homicide, rape, kidnapping, torture, poisoning, etc; it examines those individuals who are charged or suspected of causing harm to other people; in addition, it not only examines victims and suspects of crimes, but also the alleged suicide victims with non-fatal injuries after self-inflicted injuries, as well as those who present injuries or deaths presumed to be accidental; they are explored by a specialist in forensic medicine, performing the analysis of the alterations that originate physical, chemical and biological harmful injuries in the human body; medical opinions constitute data and means of proof for the agent of the Public Ministry in the penal system; likewise, they certify when the suspect is in a state of intoxication or acute intoxication or drug dependence and committed a crime. Its objective is to make medical-forensic diagnoses that serve for the application of the law and not to give treatments to people, as it happens in the clinical setting.

Forensic doctors or forensic scientists use the scientific method as a method of study, as in clinical medicine; through medical propaedeutics and semiology they carry out their certifications and their opinions. Although most of these doctors perform their work within the forensic doctor's offices or in the amphitheater, their work can also take them out of those areas, such as the crime scenes, where they observe the place and perceive signs. Forensic scientists work in state and federal Public Ministry agencies charged with enforcing law. Also, they can participate as technical consultants in the oral trial.

The task of forensic doctor is to act as assistants for justice and not to support one of the parties in the trial. In that sense, the role of the forensic doctor in relation to the person examined is different from the role of the clinician in their relationship with the patient, where the physician often becomes an advocate for the patient. The main function of the forensic doctor is to practice a scientific approach to the medical problems posed in a legal context by the authorities. It is inherent in its very nature that the forensic physician, regardless of his or her principles, strives to help with impartial evaluations based on science, experience, logic and bibliography related to the case.

Therefore, forensic science in criminal law, can contribute to prove the existence of a fact, provide data and evidence that serve for the agent of the Public Prosecutor's Office to integrate the Investigation Folder; this allows the judge to determine that this act is a crime and that the accused participated or committed it, all through (a) identification and examination of the evidence, (b) consistent and consistent interpretation and integration of the physical evidence , (c) clear and concise opinions and (d) forensic scientific explanation in the oral proceedings.

Consequently, forensic science has become an integral part of many cases and criminal sentences, with objective facts through the scientific knowledge that serves, both for the defense, and for the arguments of the agent of the Public

Ministry. The trial of forensic scientists has become a reliable component of many civil and criminal cases, since these professionals are not concerned about the outcome of the case, but that their explanation is objective and based purely on scientific information.
In that sense, the forensic doctor is involved much more than simply investigating the facts of a case; also, you have to justify or refute them based on an analysis of the evidence or interpretation of the evidence; One challenge is to process the evidence correctly and, when it becomes evidence, allows them to be integrated coherently and congruently in the case in question.

Also, strong reasoning and arguing skills are crucial because forensic doctors will often be asked to state their findings in court. Normally, these scientists are required to present their opinions to the Public Prosecutor and the defense attorney, detailing the background, nature of the findings, analysis and reflections. These rulings can be extensive and complex; experts must demonstrate how they arrived at their conclusions.

A forensic scientist often serves as an expert in a trial. It is not part of the incident that led to the lawsuit or criminal trial so they can not give testimony of the facts. Rather, they issue a judgment of their interpretation. They have the training and credentials to raise an opinion on the medical aspects of the case, so, the forensic doctor must have a medical degree in addition to a specialty diploma issued by a higher education institution.

In the investigation of a crime related to the medical field, the forensic medical expert will work closely with other forensic experts, who take samples at the scene and determine what substances, if any, may be in the body that could have caused or contributed to the production of injuries or death. Forensic doctors must also work closely with other investigators to obtain a complete picture of the circumstances surrounding the events, such as criminologists, anthropologists, pathologists, entomologists or investigative police, to help reach relevant conclusions.

The final duty of the forensic doctor is to express opinions in the courts about various questions that arise during the investigation of the facts; the opposing party reserves the right to cross-examine and question the findings of this expert. Therefore, it will be useful for forensic doctors to know and use the scientific method in the integration of their opinions; written and oral communication is the culmination of his research work and it is necessary that it be carried out in an appropriate manner, faithfully expressing the content; forensic doctors are called to court fairly frequently and must be able to present their opinion objectively and scientifically supported, so they must also know the legal procedures, legal terms and judicial procedures.

Conclusion

Medicine is a profession and a science that is responsible for the study of health and disease in humans, using the scientific method through medical propaedeutics and semiology, to achieve clinical diagnosis and establish treatments. In the Mexican educational system there is a medical specialty called Forensic Medicine, which, unlike clinical medicine, is responsible for providing data and means of proof (certificates and opinions) to the Public Prosecutor's agent so that he

or she can integrate the Folder Investigation; this medical specialty is considered a forensic science because, like clinical medicine, it uses the scientific method through medical propaedeutics and semiology, performing examinations on victims and defendants or suspects of a crime. Its objective is to assist the authorities by providing medical knowledge in all areas of medicine in an impartial, objective and scientific manner, for the administration and administration of justice.

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