

***Huellas hispánicas en la evolución de la transfusión sanguínea.
Su relación con la enseñanza médica
Hispanic traces in the evolution of blood transfusion. Its
relationship with medical education***

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Recibido: 3 de enero de 2024

Aceptado: 17 de abril de 2024

Resumen

La colonización trajo a Cuba una atrasada medicina europea medieval, su desarrollo en la isla fue influenciado por los españoles. La medicina cubana de la época, fue dominada por los boticarios, sangradores, comadronas y herbolarios con poco a casi ningún conocimiento científico, por lo que la utilización de la sangre necesitó de años para comprender su importancia. La medicina transfusional no forma parte de los currículos de estudio de la carrera de medicina en Cuba, su contenido es insuficiente y las consecuencias para la formación son desfavorables. En correspondencia con ello, el presente trabajo hace referencia a algunas consideraciones teóricas sobre el tratamiento al contenido de la medicina transfusional en las asignaturas del tercer año de la carrera de Medicina en la Universidad Médica de Guantánamo. El método fundamental utilizado ha sido la observación y la lectura de documentos y los principales resultados se enmarcan en el trabajo metodológico.

Palabras clave: Medicina transfusional; Currículo de estudio; Huellas hispánicas; Trabajo metodológico.

Abstract

Colonization brought to Cuba a backward medieval European medicine, its development on the island was influenced by the Spanish. Cuban medicine at the time was dominated by apothecaries, bleeders, midwives and herbalists with little to almost no scientific knowledge, so the use of blood took years to understand its importance. Transfusion medicine is not part of the curricula of medical studies in Cuba, its content is insufficient and the consequences for training are unfavorable. Accordingly, the present work refers to some theoretical considerations on the treatment of transfusion medicine content in the third year subjects of the Medical School at the Medical University of Guantánamo. The fundamental method used has been the observation and reading of documents and the main results are framed in the methodological work.

Keywords: Transfusion medicine; Study curriculum; Hispanic footprints; Methodological work.

Introduction

In the XVI century, when the Spaniards arrived and began the colonization of these lands, guided by greed, imbued with Christian mysticism and equipped with better technology, they brought us Spanish medicine, which was none other than a backward medieval European medicine. This was really a Galenic or Hippocratic medicine improved with some Arab influences, it was a medicine of examining the pulse and urine, of prescribing purges and bloodletting, as well as prescribing triaca.

The development of medicine in Cuba was influenced by cultural elements contributed by the colonizers and also by the colonized, such as the technological advances of the time, religion, customs and habits, among many others, which left a definitive mark on the events that shaped the evolution of medicine in the nascent colony.

As for the use of blood, as it happened in other parts of the world, in Spain, in the 13th century, there was a medical school where phlebotomy was the most frequent operation. This was introduced in America during the conquest and was recommended for almost all ailments. In the Spanish colonies, the title of Master in Phlebotomy, in charge of training and proposing bleeders, was regulated, and Cuba was not exempt from this.

As confirmed by (Aguiar and Benítez, 2010, p.143), "Cuban medicine of the time was dominated by apothecaries, bleeders, midwives and herbalists with little to almost no scientific knowledge".

However, although bloodletting was used with fidelity and enthusiasm for more than 2500 years, the same did not happen with blood transfusion, it took many years to understand the need for the use of

blood as a therapeutic measure. As the knowledge of blood progressed, physicians began to think about the possibility of replacing lost blood.

Without clear and evident benefits, transfusions, discredited by the accidents they caused and the dangers they entailed, were banned by the authorities in some countries. These measures meant paralyzing and delaying advances in transfusion for about 150 years, therefore, at this time, what is known today as transfusion medicine did not exist, there were many doubts about the harmlessness or danger of transfusion, so it took years for its development and teaching in medical schools in Cuba and the world.

It was after the triumph of the Cuban Revolution in 1959 that the teaching of medicine was reorganized with the creation of different study plans from the generation of the B plans in 1985 to the present. Successive changes in the health system and scientific advances led to Plan C and then, in 2014, to Plan D.

In 2019, a new study plan called E is introduced, which is designed so that broad and active student participation in their training prevails. However, like its predecessors, topics such as transfusion medicine are not part of the curriculum.

Due to significant advances in recent decades, transfusion medicine has become a specialty in its own right. Some of the advances in medicine and surgery are partially due to the availability of blood components. Complicated cardiac surgery, liver and bone marrow transplants, and aggressive chemotherapy are examples of treatments that rely heavily on transfusion of blood and blood components.

Unfortunately, most of the medical schools in the world do not include in the medical training programs the essential elements of the rational and adequate use of blood components, there is a tendency to provide a very elementary emphasis of the contents of transfusion medicine, this brings about the insufficient preparation in the subject, which is the discipline that gathers and studies all the aspects related to the donation, processing and use of blood, which reduces the patient's safety and therefore considerable damages can be produced.

In Cuba, as in the rest of the world, this discipline is not part of the curriculum designed for the medical career. It is evident that the contents related to transfusion medicine are insufficient and the consequences for training are unfavorable.

Although there is research on the history of blood transfusions in Cuba, up to the time of the study, none of it substantiates the relationship between the main advances of this activity and its teaching in the different Cuban medical curricula.

Therefore, the objective of the present work is to refer some theoretical considerations on the teaching of transfusion medicine in the third year of the Medicine career at the University Of Medical Sciences Of Guantánamo, as well as its solution in correspondence with the model of professional to which we aspire.

Development

Methodology

The present work is developed at the University Of Medical Sciences Of Guantánamo, in the group of the Internal Medicine course. Theoretical methods such as the historical-logical, synthetic analytical and inductive-deductive, and empirical methods such as observation and documentary study were applied respectively. The historical-logical method favored the historical analysis of the treatment of the content of transfusion medicine in the course of Medicine in Cuba; the analytical-synthetic method was used to interpret the data in the revision of documents and to gather the essential ideas; the inductive-deductive method was used to deepen in the theoretical aspects of the treatment of the content of transfusion medicine in the subject Internal Medicine of the third year of the course of Medicine.

Observation, as an empirical method, allowed the direct verification of methodological activities to obtain information in relation to the treatment of the transfusion medicine content in the teaching-learning process of the subjects of the third year of the course. The documentary study facilitated the study and analysis of normative documents such as the Model of the Professional for Physicians, the career syllabus, the Program of disciplines and subjects, the Resolutions of the Ministry of Education and the Ministry of Public Health and indications related to the subject.

The foundation of the Real y Pontificia Universidad Del Máximo Doctor San Jerónimo de La Habana took place in 1728. In 1734, just six years after its inauguration, its statutes and regulations were approved, and the first study plan of Medicine in Cuba legally came into force, which lasted 114 years until 1842, when a new, more scientific and didactic study plan was created.

It is known that the first blood transfusion was performed in the 17th century by the philosopher, mathematician and physician of Louis XIV, Jean-Baptiste Denys, who dared to transfuse lamb blood in humans on June 15, 1667, with fatal results that led to its prohibition. On the other hand, the Englishman James Blundel, an obstetrician, performed the first successful transfusion of human blood

in 1818. However, in Cuba, the existing knowledge about blood transfusion was minimal with flashes of individuality.

It was the Cuban physician, of Spanish origin, Claudio Delgado Amestoy, doctor in medicine of the Royal and Literary University of Havana, who performed the first transfusion in Cuba, with blood from a ram and supplied to a subject attacked by rabies. Later, in 1878, at the San Juan de Dios Hospital in Havana, he also transfused a patient, but this time with human blood. However, it was not until 1900, with the discovery of the ABO blood groups, that transfusion was consolidated in our country.

Allogeneic blood transfusion is recognized as one of the five most abused hospital procedures, in the opinion of Garraud et al. (2018), there is a substantial inconsistency in transfusion medicine education, resulting in a lack of competencies and knowledge regarding the entire transfusion chain, due, in part, to the fact that most of those who order a transfusion did not receive proper training in transfusion medicine during undergraduate.

Due to the importance of the knowledge of transfusion medicine in the field of medical pedagogy, there are several researches dedicated to the subject. Internationally, there are studies in relation to the teaching process of transfusion medicine in medical universities, such is the case of (Al-Riyami et al., 2021; Javadzadeh, 2016; Konia et al., 2018), which express the insufficient preparation in transfusion medicine in medical students, residents and physicians of different specialties.

In Latin America researchers such as (Muñoz, 2015 and Paredes, 2018), dealt with evaluating the level of knowledge of blood donations by medical students, they concluded that most of them had an adequate level of knowledge, however, the attitude towards the act of donating blood was negatively influenced by sociocultural aspects such as family need and in others, indifference towards the act.

Cuban authors, such as Diego de la Campa (2017), opine on the need to achieve a solid professional training in transfusion medicine for those who indicate this treatment.

Several studies conducted by (Melián et al., 2016; Torres et al., 2020; Ferrer et al., 2021), also show the relevance of including in the whole process of medical training the knowledge of transfusion medicine to achieve the optimal use of blood components in health units.

In Cuban hospital units, transfusion of blood components is a common procedure; during 2020, 174,721 transfusions were performed. The figure of this indicator reaffirms, as Diego de la Campa (2017) opines, the need to achieve a solid professional training in transfusion medicine of those who indicate this treatment.

Despite having research, which at the theoretical level, provides information on the importance of teaching transfusion medicine and the work done by the collective of teachers in the third year of the

medical career at the Medical University of Guantánamo, there are still insufficiencies that influence the performance of teachers, among which are:

- The theoretical-methodological preparation for the treatment to the content of transfusion medicine.
- In the methodological treatment of the content of transfusion medicine in the subjects of the third year of the career such as Internal Medicine.
- Limited use of the potentialities offered by the contents of the subjects of the third year of the course such as Internal Medicine for the treatment of transfusion medicine.

The first notions of transfusion medicine begin in the area of Basic Biomedical Sciences (CBB) corresponding to Plan D, year 2014, from two subjects that integrate the discipline Biological Basis of Medicine which are Cell, Tissues and Tegumentary System and Blood and Immune System, which provide the molecular and morphofunctional foundations for the theoretical training in the same.

In the clinical area, specifically in the third year of the course, it is the subject Internal Medicine, which should contribute to the student's training in transfusion medicine. However, this subject does not achieve the required systematization and integration, horizontal and vertical, of the contents.

For Borrego (2021), it is a subject of preference for students, due to the importance it has for the development of skills necessary for the practice of the profession, however, regardless of the progress that has been achieved in the teaching-learning process of the contents of the Internal Medicine program, there are difficulties that have their roots in the conception of the curricular design.

In the context of Internal Medicine, the treatment to the content of transfusion medicine is fundamental due to the importance of blood transfusion and its components in the management of various diseases and clinical situations. The teaching of transfusion medicine from the subject provides medical students with a comprehensive understanding of when and how transfusion should be performed, the associated risks and benefits, indications and contraindications, as well as possible complications and management strategies.

For such reasons, those responsible for its teaching must develop a high scientific-methodological level and a commitment to the country's educational policy, which allows leading the teaching-learning process of students in an integral manner, at increasingly higher levels, becoming a model of personal and professional performance for the trainees.

Taking into account the evident insufficiencies in the current context, Ministerial Resolution 47/2022 of the Ministry of Higher Education was established, which approved the Organizational Regulations

of the Teaching and Methodological Teaching Process for University Degrees, which in its chapter I, first section, article 5.2 expresses:

(...) the training model of the higher education professional presents its own characteristics for each generation of study plans as a consequence of the scientific-technical, socioeconomic and cultural changes of the national and international scenario and in response to the demands of the country. These particularities are detailed in the Base Document that is elaborated as an orienting guide for the design of the study plans (p. 3).

By virtue of this Resolution, Plan E comes into effect, with changes in the plan of the teaching process, the programs of disciplines and subjects, a curriculum is designed with three levels of priority: basic, proper and optional, to be decided by the students according to their interests. It provides the opportunity to develop courses on transfusion medicine, gives the possibility of elaborating programs and courses by decision of each institution with the objective of achieving a greater integration of the contents of the Basic Biomedical Sciences in the rest of the career.

In this same order and direction, Salas (2017), states that the curricular design and organization should provide the necessary tools to successfully develop the learning process, as transfusion medicine is not conceived in the curriculum of the Medicine career suggests that it is necessary to address the subject in the meetings of the year and career collectives to seek alternatives, so that students receive the deep theoretical knowledge required for the optimal clinical use of blood and blood products.

Diego de la Campa et al. (2017), further state that although the official curriculum of the career in Cuba does not contemplate imparting the knowledge of transfusion medicine in the undergraduate, it is possible to acquire it during the daily interaction with teachers in the areas of medical care, however, the process cannot be left to spontaneity, it is necessary to start taking steps towards the integration of transfusion medicine in the formative process with the implementation of an effective methodological work in the corresponding collectives.

With reference to the above, it is considered of vital importance the different contributions offered by the consulted authors, taking into account the importance of the adequate training of health professionals from the curricular formation with the capacity to respond to the problems they will face in their work practice.

In a general sense, it is important to point out that the insufficiencies in the treatment of the content of transfusion medicine in the third year of the Medicine course, supports the need to search for alternatives aimed at improving the teaching-learning process, making it possible to increase the

students' knowledge, creating cognitive interests, enriching them methodologically and allowing them to increase their motivation towards the content.

It is assumed as methodological work:

The work that, supported by didactics, is carried out by the subjects involved in the educational teaching process with the purpose of achieving optimal results in said process, prioritizing the educational work from the instruction to fully satisfy the objectives formulated in the study plans. (MES, 2022).

The main functions of methodological work are the planning, organization, regulation and control of the educational teaching process. The adequate performance of these functions contributes to the achievement of the integral preparation of future professionals.

The teaching-methodological work should be oriented to ensure that teachers master and give an outlet, through the contents of their classes and the activities of education at work, to the treatment of the content of transfusion medicine from the subject of Internal Medicine of the Medicine course.

All this, makes evident that different forms are used in the teaching-methodological work of the teachers for the achievement of their preparation such as: Methodological Meeting, Methodological Class, Open Class, Methodological Workshop and Subject Preparation.

In the methodological meeting, problems that affect the teaching-educational process are analyzed and debated, their causes and possible solutions are evaluated from the pedagogical theory and practice, taking into consideration the collective and individual potentialities for their better development. In this form of teaching-methodological work, the results of the classes and controlled activities and of the record of methodological assistance visits are taken into account, where agreements are adopted that can constitute lines for another form of methodological work.

For its part, the methodological class is the form of teaching-methodological work that orients the teaching staff on aspects of a methodological nature that contribute to their preparation for the execution of the teaching-educational process, it also allows explaining and supporting the work to be developed with the master programs, it can have a demonstrative or instructive character.

The instructive methodological class starts from an identified methodological conceptual problem, orients the teaching staff on aspects of methodological character, it is developed through the presentation of a class, class system, through which concrete methodological proposals are offered for its possible solution. It is carried out without the students, in the department collective. It is carried out by the head of department, subject leaders, or experienced teachers.

The demonstrative methodological class is carried out with students; it is given by an experienced teacher, to demonstrate methods, procedures or the treatment of a didactic problem oriented in the instructive methodological class or methodological meeting. In it, it is demonstrated how the methodological propositions made are concretized. It is developed with the participation of the teachers that integrate the subject group of the year, natural scenario in which the teaching-learning process takes place (classroom, specialized classroom, annexed classroom, methodological areas, laboratory, workshop, library, among others).

The open class focuses its attention on the collective observation of a class or activity of the teaching-educational process. It is oriented to generalize the most significant experiences and to verify how the methodological work is carried out. The observation is oriented towards the fulfillment of the objective proposed in the methodological plan and that has been addressed in the meetings and methodological classes with the objective of demonstrating how the content should be developed.

The methodological workshop is the activity that is carried out with the teachers and in which, in a cooperative way, strategies and didactic alternatives are elaborated, proposals for the treatment of contents and methods are discussed, as well as the process of professional reaffirmation and generalized conclusions are reached.

The preparation of the subject is the type of teaching-methodological work in which the teacher and the pedagogical collective participate, prior to the realization of the teaching activity, in order to guarantee the planning and organization of the class systems and activities of the teaching-educational process, taking into account the methodological orientations of the department, the objectives of the year, as appropriate.

Based on the above considerations, the methodological work of the Internal Medicine subject group of the Medical University of Guantanamo is developed. By virtue of the inadequacies found in the treatment of the content of transfusion medicine, the teaching work developed in this sense is considered as an experience. It is achieved with the understanding, collaboration and commitment of the professors for the achievement of the different proposals that allow improving the knowledge on transfusion medicine.

In this order of ideas, the experience of the teaching staff of the subject is cited, which shows their participation in the development and application of a methodological alternative for the treatment of the content of transfusion medicine in the subject Internal Medicine. The methodological alternative presented highlights the objective as a guiding category, as well as the role of the teacher as an agent of change, and his active role in the teaching-learning process of the subject.

For the elaboration of the methodological alternative, the following elements were taken into account:

- Model of the professional for physicians.
- Current study plan.
- Educational and instructional objectives of the subject Internal Medicine.
- Knowledge system of the subject.
- Characteristics of the Internal Medicine program.
- Diagnosis of the initial state of the methodological treatment of the content of transfusion medicine from the teaching-learning process of the subject Internal Medicine.
- Methodological work of the subject group.

The methodological alternative is designed on the basis of a general objective and four stages: diagnosis, planning, execution and evaluation, with specific objectives and a system of actions for each of them. The general objective of the alternative is to offer theoretical and methodological resources in the treatment of the content of transfusion medicine from the Internal Medicine subject in the Medicine career. The evaluation, in spite of being framed in a phase, is present in all the stages, and in the fulfillment of the general objective.

The realization of the consultation to specialists and the workshops of critical opinion and collective construction, constitute a support of the alternative, since they gave rise to a space of socialization and evaluation of the same. In this way, freedom of opinion on critical reflection is guaranteed and decisions are made on the basis of debate among teachers. At the same time, the specialists selected have vast experience in methodological work, which confers greater reliability to the criteria issued for the evaluation of the proposal.

From the above, it can be deduced that teachers are offered a methodological instrument that allows them to favor, in the teaching-learning process of the subject Internal Medicine, the treatment of the content of transfusion medicine, which contributes to the strengthening of the training of the medical professional in Higher Education. In this way, from the mentioned subject, the professional performance of the graduate is elevated, to face and transform the object of study of Medicine: The health-disease process.

The elements of the methodological work in the Internal Medicine subject group that contribute to the solution of the problem raised are identified:

- Preparation of the subject: with the participation of the main teacher of the subject and the pedagogical collective, where, prior to the realization of the teaching activity, the planning and organization of the class systems is guaranteed, taking into account the treatment to the content

of transfusion medicine in the classes and activities of the Hemolymphopoietic System subject. It determines the teaching method and means to be used, the task systems that include independent study and its output in all the organizational forms of the teaching-educational process, as well as the control and evaluation activities.

- Methodological workshops: a fruitful exchange was achieved with the professors who teach about fundamental aspects that limit the quality of transfusion medicine teaching. We also took into account the teachers' experience in the treatment of this subject and how they deal with it in their classes and work education activities.
- Instructive methodological class: taking advantage of the potentialities offered by the contents of the subject, it was shown how to develop the class in a correct way. The content of transfusion medicine was treated from the methodological point of view, offering the necessary methodological resources. Carried out by the main professor of the Internal Medicine course.
- Open class: compliance with the indications and suggestions given in the methodological work on the subject was verified. In these classes, less experienced or novice teachers were able to participate in order to develop skills. The corresponding recommendations were issued and those present contributed criteria, achievements and deficiencies observed in the class.

In the opinion of Villalón (2018), it is in the methodological work where the necessary elements that make it possible to carry out an adequate work in the teaching-educational process for the materialization of the objectives proposed to education are articulated, and the results of this direction constitute one of the main ways that allows the teacher an adequate preparation for the conduction of the process, he also expresses that the effectiveness of the methodological work is valued by the results obtained by students in the appropriation of knowledge, in the development of capacities, skills and habits to learn independently and creatively.

From the methodological work developed in the Internal Medicine subject group, the following results are obtained:

- The treatment to the content of transfusion medicine for the formation of the student of Medicine must be conceived and systematized by the Internal Medicine subject.
- To argue methodologically from the conception of the subject and the methodological work the treatment to the content of transfusion medicine.
- To facilitate the methodological reorientation to the teachers of the subject Internal Medicine and to exemplify on their part, proposals of teaching activities that favor the treatment to the content of transfusion medicine in the subject.

Authors such as Bravo, et al. (2017), refer in their work to the fact that knowing the results, effects and impacts of training programs is essential for making decisions regarding their quality, relevance and equity.

Both at the undergraduate and postgraduate levels, it is necessary to verify the changes that are brought about as a result of the effect of the training actions developed, and to identify the unexpected changes that derive from their influence, in order to favor their improvement.

The progressive technological development brings about numerous challenges that require a growing qualification, which will allow them to face the constant demands in the different areas of knowledge. Therefore, the levels of demand point towards greater professionalization, the tendency is to train a professional with a broad profile based on on-the-job education, who responds to the current challenges of society and the health system.

Finally, the impact it has had on the professors and students of the Medical School of the University Of Medical Sciences Of Guantánamo is manifested as follows:

- Greater preparation in the teaching-methodological and scientific work of the teaching staff contributing with the theory and educational practice from the contributions made to science.
- Increase in the number of researchers who consult the work in relation to the treatment of the content of transfusion medicine from the subject Internal Medicine based on the indicators that evaluate the transformations achieved by the student and the novel actions designed.
- Recognition of the object of the profession and its functions for the performance, with active position in the learning of the content of transfusion medicine, expressed in the love for the profession.
- The integrated work of professors, managers and tutors, which includes the relationships established between the Medical University of Guantanamo and the Internal Medicine subject group for the treatment of transfusion medicine content from the subject.

Conclusions

According to the current curriculum of the Cuban Medical School, the knowledge of transfusion medicine provided by the different subjects is fragmented and insufficient. The different programs of the subjects, such as Internal Medicine, express deficiencies in the specific objectives that contribute to the way of competent performance in this area. In the implementation of the methodological work of the Internal Medicine group, there are irregularities in the treatment of the content of transfusion medicine in the subject, which determines the need to apply new ways that contribute to improve the knowledge on the subject in the training of the future medical professional.

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