ANALGESIC DOSAGE FOR CANCER PAIN: AN EXPERIENCE FROM THE TEACHING-LEARNING PROCESS

ESCALERA ANALGÉSICA DEL DOLOR ONCOLÓGICO: UNA EXPERIENCIA DESDE EL PROCESO DE ENSEÑANZA APRENDIZAJE

Sarah María Regueira Betancourt[1] (regueira@ltu.sld.cu)
Javier Armando Gómez Obando[2]
Kenia María Velázquez Avila[3]

ABSTRACT: The article presents the possibilities of using the analgesic ladder in cancer patients. Methodological suggestions are presented on the need to apply the analgesic ladder of cancer pain, especially from the teaching-learning process, since the deficiencies of its use are evident. This is manifested in medical practice when the third step starts with potent opioids, without using possible combinations of non-opiods with weak and coanalgesic options.

KEY WORDS: Cancer, analgesic dosage, cancer pain

RESUMEN: El artículo presenta las posibilidades de utilización de la escalera analgésica en los enfermos de cáncer. Se exponen sugerencias metodológicas sobre la necesidad de aplicación de la escalera analgésica del dolor oncológico, sobre todo, desde el proceso de enseñanza-aprendizaje, ya que las carencias de su uso son evidentes. Lo anterior se manifiesta en la práctica médica cuando se comienza por el tercer escalón con opiodes potentes, sin utilizar posibles combinaciones de fármacos no opiodes con opiones débiles y coanalgésicos.

PALABRAS CLAVES: cáncer**,** escalera analgésica, dolor oncológico

Cancer is a disease worldwide. It is evident the increase of its incidence and mortality. Malignant tumors are the leading cause of death in many developed and developing countries. Mortality is not only a serious health problem, but also because of the great psychological and social connotation in the population.

---

[1] Associate Professor of the Medical Sciences University in Las Tunas, Aggregate Researcher. Specialist of First and Second Degree in Internal Medicine and Specialist of Second Degree in Pharmacology.

.

[2] Bachellor in Medicine, Master in Epidemiology and Collective Health. Director of the Health District 08D05 San Lorenzo

.

[3] Professor of the University of Las Tunas, PhD in Pedagogical Sciences, Master in Education Sciences and Licentiate in Education in the Spanish-Literature specialty.

It is considered the silent epidemic of the 21st century, affects more than 20 000 000 people each year and takes more than 7 000 000 lives. The number of deaths due to this cause exceeds the set of AIDS, malaria and tuberculosis. It is estimated by 2035, a growing number of people with cancer of approximately 24 000 000.
Historically, in Cuba, it has been one of the first causes of death and in 2012, it became the first, so it outperformed cardiovascular diseases. At the end of 2016, mortality was 24 303, at a rate of 216.3 per 100,000 inhabitants with 18.2 years of potential life lost per 1000 inhabitants. In Las Tunas province, deaths due to malignant tumors in 2016 were 1193, with a mortality rate of 221.5 per 100,000 inhabitants, which was the leading cause of death.
From the above, it is inferred that the physician, from primary health care, must ensure comprehensive, timely and systematic care in a continuous process, in which he must combine pharmacological experience and clinical experience in order to improve the efficacy and Safety in the management of medicines. To this end, it must educate patients against self-medication and non-drug use, prevent the occurrence of adverse drug reactions based on scientific evidence from reliable bibliographies, encourage self-learning, teamwork, Promotion and prevention of health in their patients.

Pain as a symptom of cancer

Pain is a major symptom in one third of active cancers and two thirds of patients with advanced tumor stage (Hernández, Fuentes, & Cruz, 2013). Persistent pain progressively deteriorates the patient's physical and psychological states. The level of tolerance decreases, due to the depletion of endorphins. To the loss of sleep and decrease of the appetite are added the existing problems, which lead the patient to diminish their social interests and their quality of life.
Cancer patients with pain become depressed, become anxious, and become more and more emotional. If cash relief is achieved, all these psychological alterations are almost completely reversed (Regueira, Fernández, & Díaz, 2015a). It is the accompanying symptom that most frequently leads the population to medical consultation, becoming one of the main public health problems, since not only supposes the expenses of hospitalization, consultations, analytical and diagnostic tests, but also expenses Which generates labor casualties, a decline in work performance or loss of productive capacity (Carnero, 2014).
Pain causes imbalance in human integrity and is a frequent reason for medical consultation. The child is particularly vulnerable to poor treatment of pain, a situation that is increased due to poor communication capacity (Velasco, 2014). Hence, the professional must be competent to diagnose the pain and its intensity.

The prescription of the analgesic ladder in cancer pain from the teaching-learning process

The teaching-learning process of Medicine in Cuba, based on the dialectic-materialist conceives that in the health-disease process, the medicine must be chosen according to the line of efficacy, safety, convenience and cost. In routine medical practice patients are evaluated who exaggerate disease symptoms and

doctors prescribe accordingly. Polymedication involves theoretically predictable and preventable risks with greater attention to the individualization of treatment.
There is no drug without undesirable effects, therefore one must learn to evaluate the risk-benefit relationship, considering that assuming a therapeutic behavior before a particular cause can provoke the effect of restoring health, but also unwanted adverse reactions. The European Medicines Agency estimates that 197,000 people die each year from adverse effects in Europe. In the United States, adverse effects are the fourth leading cause of death, behind myocardial infarction, stroke and cancer; And above diabetes, lung diseases and traffic accidents (Laporte, 2015).

> "The doctor who does not master the principles of Pharmacology, cannot do good drug therapy, or what is the same, rationally scientific, therefore, will be a bad prescriber. The best-conceived prescription may be therapeutically useless if the patient is not instructed on how to take the prescribed medication (Regueira, Velázquez and Santiesteban, 2017, p.3).

The student must appropriate all pharmacological content instituted; To expand it by pharmacological groups, not only to limit it to the Basic Chart of Medicines established in the country, starting from its internationalist formation. It must learn to apply this knowledge taking into account that isolated diseases are studied while in medical practice they are associated, with multiple comorbidities. In addition, to know that the clinical trials to validate a drug approach simplified patients that in their act they present complexes.
In the field of sociology, the teaching-learning process of Clinical Pharmacology is based on the categories socialization and individualization. Socialization is the process of assimilation and objectification of the socially necessary contents, which allow the integration of man into the social context and his participation in personal and collective development. Individualization is the process of formation and development of the individual personality from external educational influences, natural dispositions and personal reconstruction, which determines the appearance of individual characteristics unrepeatable.
Education as a fundamental means for the socialization of the subject and the school as a socializing agency have the social responsibility to optimize the assimilation and objectification of the pharmacological content in the training of the physician as a socializing agent. Such a doctor is not only suitable to diagnose and prescribe, but also to act, it is the responsibility of the physician to explain, to the patient and / or family members, everything related to the indicated drug. This will allow an increasingly updated professional, technical, trained, capable of doing, but also more sensitive, committed, available, comprehensive, humanized, prepared to feel and support.
The teaching-learning process of medicine is based on cultural historical theory. This theory considers that the man is a social being, but in his social being is contained his natural being. The biological and the social exist in man in an indissoluble unity and it is this unity that makes it possible to understand what is determined by his human nature and his personality. They constitute premises for the formation and development of the individual in the activity that he performs in the system of social relations.

In this sense, it is vital to consider individuality as an intrinsic characteristic of the personality. This is expressed in those characteristics of the personality that differentiate them from the others. This is an essential element to take into account during the teaching-learning process of Medicine because protocols, norms, guidelines and consensuses are established to apply the pharmacological content to each specific disease. However, these cannot be used more than as guidelines adapted to each individual case.

Personalized medicine should not only refer to the use of drugs to prevent or treat diseases, based on pharmacogenomics, but also to the consideration of individuality of the patient in all senses and not only when it refers to their potential response to the drugs. Every human being is unrepeatable in its singularity, both from the biological point of view, and, above all, psychological, social, cultural and spiritual.

Most of the drugs are on the market with trade names (trademark, specialty) to distinguish them from those that are produced and marketed exclusively by a single manufacturer. Trademarks appear in many publications and are widely used in clinical practice. These names are usually registered with a patent and confer some legal rights regarding their use to whoever registers them. A specialty may represent a drug containing a single active ingredient (with or without excipients) or a combination of two or more active ingredients. A drug marketed by more than one manufacturer may have various trademarks. Drugs produced in one country and marketed in different countries may have a different trade name in each.

Today, there are more than 12,000 patents for pharmaceutical chemicals in the world and the trend is to continue to grow. Most of these products are drugs called me too, ie drugs of the same pharmacological group with common mechanisms of action and undesirable effects and small pharmacokinetic differences that, in some cases, facilitate compliance with the treatment. Patient to have to administer fewer times a day. In fact, so many drugs in the same group, such as calcium channel blockers that include more than 20, or angiotensin converting enzyme inhibitors with more than 15, generally contribute little and confuse the doctor to make The appropriate prescription before a diagnosis (Morón and Levy, 2002).

All this explosion of medicines in the world is determined, in part, by the strong profits that are derived from the sales by the big transnational pharmaceutical companies, sometimes in very sensitive areas such as acquired immunodeficiency syndrome. At the moment, these gains are only surpassed by the drug trade and the war industry.

From the foregoing, the transnational pharmaceutical industry devotes large financial resources to promoting its products, and the information has a strong commercial influence, which in turn influences the prescriber and patients for the use of new drugs.

Faced with the severe economic crisis in developing countries, the availability of financial resources to guarantee the accessibility and coverage of proven and safe medicines for all sectors of the population is affected. Those that have lower purchasing power are limited.

Cuba is an exception in this context due to the high development of the health system and the access of the population to 100% of essential medicines to solve the main health problems.

Both situations, the excess of medicines in developed countries and the deficit in these developing countries, are not good for an adequate use of medicines. Due to the large number of pharmaceutical specialties circulating around the world, there have been epidemics of fatal, serious or irreversible adverse effects. However, some attempts have been made to measure the benefit-risk ratio of drugs in mankind and, although difficult, some attempts indicate that, if these disappeared, 37 minutes would be gained in life expectancy, while Introduction has allowed it to be extended in 15 years. Therefore, undesirable effects of a drug should not be hyperbolized, but the potential risk of adverse reactions should always be kept in mind.

The Basic Chart of Medicines is based on the health status of the population, the characteristics and level of health services that are provided. It must be systematically reviewed, which makes it necessary to update the National Drug Formulary offered to Cuban health professionals, with up-to-date scientific information as part of the interventions needed to achieve rational use.

The analgesic ladder of cancer pain

The theoretical concepts are fundamental in Pharmacology and its teaching requires an organization of the discipline, the most common form is by therapeutic groups, this is how the issues addressed are separated into analgesic drugs, anti-inflammatories, antibiotics, among others; That allow that in a structured way these are incorporated in the cognitive structure of the students.

It is essential to relate the pharmacological information to the clinic, in order to properly present it to students and physicians. The teaching of pharmacology must adhere to the scientific method, since drug selection is a continuous, multidisciplinary and participatory process that must be developed based on the efficacy, safety, quality, convenience and cost of these drugs.

"The general practitioner must possess the fundamental knowledge that allows him to carry out a rational and rational pharmacological therapeutics on the prevalent diseases, of greater incidence, that are the ones that generate the demand of medical attention in its greater proportion. In that sense, the general practitioner must handle issues of Pharmacology with solvency. Pharmacological therapy is an indissoluble part of all medicine and requires continuous education throughout the clinical cycle. Therefore, an effective vertical integration between the Chair of Medical Pharmacology and the other Chairs of the Clinical Cycle (Vera, 2014, page 47) is indispensable ".

For this reason, the analgesic ladder of cancer pain is explained below.

The first step of the analgesia developed by the World Health Organization consists of non-steroidal anti-inflammatory drugs (NSAIDs). The use of acetaminophen and NSAIDs is indicated only in cases of mild or moderate oncologic pain and may be used in combination with opioid analgesics and adjuvant medications in moderate and severe pain. This first step, like the other two, can be associated with adjuvant drugs.

The second step is formed by the smaller opioids. They are used alone or in combination with non-opioid analgesics to treat pain when it is mild to moderate in

intensity. Among them, mention should be made of codeine and tramadol (Caraceni et al., 2012).
The third analgesic step is the "star" in the usual management of cancer pain. Its use is indicated after the stepped failure of analgesia with weak opioids or of initiation in the presence of very severe pains. As a general rule, second- and third-tier drugs should never be associated, since their combination does not increase analgesic efficacy and, nevertheless, supposes an increase in toxicity.
The main difference between major opioids is that they do not have a dose limit, so this can be increased according to the needs and tolerability of each person (Regueira, Fernández, & Diaz, 2015b). All physicians are involved in the assessment and treatment of cancer pain, because this symptom can be treated in any care setting.
The modified World Health Organization's analgesic ladder suggests care for the family, coupled with emotional support and communication. Appropriate treatment should be informed to patients about pain and its management; Encourage them to take an active role in controlling their illness; Prevent the attack of pain, taking into account the half-life, bioavailability and duration of effect of different drugs; To prescribe a simple therapy that can be easily administered by the patient and his family, particularly when cared for at home; Indicate a rescue dose to manage episodic pain; Prevent and treat potential adverse effects related to opioids, such as nausea, vomiting and constipation.
The analgesic treatment of cancer pain should influence the different aspects of pain, including possible causes, triggers or relief factors, mood, psychological, social, spiritual and cultural dimension of the patient. It depends, above all, on the type of pain and intensity.
Therefore, in pain, with a visual analog scale equal to or greater than seven, the third step of analgesia should be initiated at first, obviating the two previous steps. The recommended route of administration is the oral route and in patients with difficulty swallowing it is possible to resort to transdermal forms. In certain circumstances the parenteral route is preferable.
In front of the analgesic ladder, the so-called analgesic elevator appears as an alternative, which allows the patient to be treated with the immediacy and speed of an elevator, making it possible to be effectively treated with the drug most appropriate to their level of pain at all times , Without waiting. The analgesic elevator is basically an intervention model that simulates that the patient is inside an elevator and has four buttons that are pressed according to the degree of pain: mild, moderate, severe and unbearable. The first button takes the patient to the floor where they find non-opioid analgesics. On the second floor will be drugs such as tramadol or codeine (sometimes dispensed in combination with acetaminophen or NSAIDs). The third floor would be that of potent opiates and the top floor would be the specialized units for pain management (Velasco, 2014).

From all the above, it can be said that:
Knowing the integral treatment of cancer pain will allow optimizing the patient's exhaustive care with this condition, as this will improve his standard of living, the quality of primary health care. As well as the availability of opiodes increasingly close to the affected and their relatives.

REFERENCES

Caraceni, A. y otros (2012). Use of opioid analgesics in the treatment of cancer pain: evidence-based recommendations from the EAPC. *The Lancet. Oncology*, 13(2): e58-e68. Recuperado el 23 de mayo de 2017, de MEDLINE Complete.

Carnero, A. (2014). *El papel de la enfermería en el manejo del dolor*. (Trabajo de fin de Grado). Universidad de Valladolid, España. Recuperado de http://uvadoc.uva.es/handle/10324/5538

Hernández, J., Fuentes, Z., & Cruz, A. (2013). Comportamiento del síndrome de compresión medular tumoral en los pacientes del Hospital Vladimir Ilich Lenin. *CCM*, 17(3), 257-265. Recuperado de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1560-43812013000300002&lng=es.

Laporte J. R. (2015).España financia todos los medicamentos que le propone la industria. Entrevista con el director del InstitutCatalà de Farmacologia. Recuperado de: http://www.elperiodico.com/es/noticias/sanidad/laporteespana-financia-todos-los-medicamentos-que-propone-industria-4760501

Morón, F. y Levi, M. (2002). Farmacología General. La Habana: Editorial Ciencias Médicas.

Regueira, S. M., Fernández, M.D., & Díaz, M. (2015a). Escalera analgésica en el tratamiento del dolor oncológico. *Revista Electrónica Dr. Zoilo E. Marinello Vidaurreta*, 40(12). Recuperado de http://revzoilomarinello.sld.cu/index.php/zmv/article/view/364.

Regueira, S. M., Fernández, M.D., & Díaz, M. (2015b). Generalidades del dolor oncológico. *Revista Electrónica Dr. Zoilo E. Marinello Vidaurreta*, 40(10). Recuperado de http://revzoilomarinello.sld.cu/index.php/zmv/article/view/343.

Regueira, S., Velázquez, K. M., Santiesteban, E. (2017) Guías de ejercicios para la enseñanza de la Farmacología. *Opuntia Brava*, Vol. 9 No. 1 Recuperado de http://www.opuntiabrava.ult.edu.cu.

Velasco, G. (2014). Escalera analgésica en pediatría. *Acta pediátrica de México*, 35(3), 249-255. Recuperado de http://www.scielo.org.mx/scielo.php?pid=S0186-23912014000300011&script=sci_arttext

Vera, O. (2014). Enseñanza de la farmacología basada en competencias. Cuadernos Hospital de Clínicas, 55(1), 43-54. Recuperado de: http://www.revistasbolivianas.org.bo/scielo.php?script=sci_arttext&pid=S1652-67762014000100006&lng=es.