changes, reason why they detail that the conventional 12-lead electrocardiogram was performed upon the patient's arrival, and daily, during the first 72 hours of evolution. It would have been interesting to show the existing evolutionary changes, which would provide the reader with more information to consider if those changes were really evolutionary changes, thus avoiding some of the following questions:

- Was the presence of premature atrial contractions subsequently related to the appearance of atrial fibrillation (AF)?
- Was the AF paroxysmal?
- Was the presence of AF related to ischemic or hemorrhagic stroke?
- At what point was the ST-segment elevation detected? Was it at the patient's arrival? Was it related to ischemic or hemorrhagic stroke?

In short, there are several unknown issues that, in my opinion, may respond to several factors. Premature atrial contractions may be the trigger of AF, which, if it is paroxysmal and being related to ischemic stroke, would be very difficult to know which one came first: whether the AF produced the cardioembolic stroke or if it was the acute cerebrovascular disease that led to the appearance of AF[4]. Moreover, there is not described if the ST-segment elevation was observed at the patient's arrival or during his/her evolution; knowing this fact would be interesting because acute myocardial infarctions can be complicated by paroxysmal AF or produce intracardiac thrombi, which are two important causes of cerebral embolism, a phenomenon that has been associated with diabetes mellitus[5].

Mr. Editor, the complexity of the research in question lies in defining the factors that may be cause or effect, in order to avoid scientific bias and mistakes in the interpretation of the results.

CONFLICT OF INTERESTS

None declared.

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Second edition of the Iván Pávlov research grant: an opportunity for Cuban science in applied psychophysiology and neurophysiology

Beca Iván Pávlov 2ª edición: Una oportunidad para la ciencia cubana en psicofisiología y neurofisiología aplicada

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To the Editor:

The scientific and technical development of our current society, which is a result of the "Information Age" in which we live, has reached an unparalleled growth. If we analyze the volume of knowledge generated in the scientific industry, we can realize that it has an exponential behavior every single year that passes.

In the 21st century, science has become more diverse, visionary and collaborative on a global scale, which has allowed scientists in the biomedical fields to discover impressive knowledge from basic sciences, and likewise, to create new clinical and diagnostic contributions with new revolutionary innovations in the field, thus, contributing to the scientific and technical development worldwide, and in the countries that promote these discoveries.

In order to continue promoting this progress, it is necessary to continue the training work from the undergraduate level on, and to emphasize both, the assistance and research areas[1]. It is also necessary to say that the main challenge faced by all medical universities in our country is about developing skills in their students that will allow them to be able to plan, develop and publish any scientific research. These are skills that go beyond the lessons' hours of the designed programs, therefore, it is necessary to use other spaces where all those interested in going dipper in the research world can be efficiently encouraged.

In response to this situation, summer research grants have emerged, which are nothing more than specialized spaces in the vacations' calendar where students voluntarily apply to be chosen among the scholars of each year, in order to acquire new knowledge and skills that would help them become better health professionals. One of the research grants that our country has is the Iván Pávlov research grant that presented the course in psychophysiology and advanced neurophysiology last August. This research grant is presented by the Department of Advanced Physiological Studies from the Medical Faculty No. 1 of the University of Medical Sciences in Santiago de Cuba[1,2], and it was developed in the Basic Biomedical Sciences laboratories of this faculty, as well as in the facilities of the Department of Neurophysiology from the *Hospital Juan Bruno Zayas*, of this city (**Figure**).

This newly founded research grant, with only two years of being open, has already had of a good acceptance and reputation among undergraduate and graduate students, both from medical sciences and other areas of knowledge[1-4]. One of the main motivations of this research grant is the transdisciplinary and interdisciplinary exchange that is established thanks to the participation of several students and professionals.

This research grant has certain characteristics[1-4]:

- It emphasizes the study of neurosciences and their neurophysiological techniques, including the study of the autonomic nervous system through the heart rate variability under the paradigm of the chaos and complexity theory.
- It is based on the open science paradigm, where participants have access to primary research information, in a way they can develop their own research (**Appendix**) and that this, in turn, helps them to develop their research skills.
- In the midst of this, there are spaces for updating and teaching on topics of interest such as medical

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Figure. Pictures taken during the research grant. **A**. After the practices in the neurophysiology laboratories of the *Hospital Juan Bruno Zayas* (Cuba). **B**. After the research grant's closing symposium.

bioethics, scientometrics, psychophysiology and other topics related to the young researcher.

- Grant holders become the protagonists of their training because they have the capacity to give workshops related to the research lines carried out by the research grant's professors.
- It promotes teamwork, the establishment of relationships with researchers from other institutions in the country and the world. Relationships that transcend with the continuity of the research works in order to publish them.
- And finally, the activities are closed with a forum where all the grant holders present the preliminary outcomes of the studies carried out during the entire course of the research grant.

If we observe carefully, it can be stated that these spaces turn out to be very useful in the Cuban context, since they do not require many resources or money for their development, but only a trained personnel and the equipped facilities for their implementation. This way, it is possible to build a simple and efficient system where it is possible to tutor high academic performance students from all over the country, in order to catalyze their scientific training and the research outcomes that they might obtain during their career as professionals.

This leads us to the following challenge: What would happen if new university spaces were added which, together, may create synergy in terms of Cuban science's development? Taking into account that in this moment there are only two research grants in the country and they are devoted to neurosciences, we have the following question: What would be the outcome if, with the excellent professors we can count on in our country, a wide spectrum of subjects to be taught is created, which could allow better scientific training to the students from biomedical sciences in Cuba?

CONFLICT OF INTERESTS

None declared.

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APPENDIX

Abstracts of the studies resulting from the second edition of the Iván Pávlov research grant.

Heart rate variability as a measure of autonomic dysfunction in patients with systemic lupus erythematosus: A systematic review

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Introduction: Systemic lupus erythematosus is an autoimmune disease responsible for multiple damages to the human body, which includes the autonomous nervous system within the target objectives prone to be damaged, being accompanied by serious repercussions on human life.
Objective: To analyze the function of linear and non-linear parameters of heart rate variability as a diagnostic tool for autonomic nervous system dysfunction in patients with systemic lupus erythematosus.
Method: A systematic review was carried out, meeting the internationally stipulated parameters, for which a bibliographic search was carried out in the main databases (PubMed, Scopus, Springer, Web of Science, Science&Direct and EBSCOhost), and all original articles that met the selection criteria were collected −by means of applying the appropriate search algorithms for each database. The researchers also carried out the studies selection and data extraction, as well as assessing the risk of bias using the Cochrane's collaboration tool.
Conclusions: It is concluded that, in patients with systemic lupus erythematosus, the study of the parameters associated to heart rate variability allows identifying the presence of autonomic nervous system dysfunction.
Keywords: Systemic lupus erythematosus, Heart rate variability.

Utility of cognitive event-related potentials in the diagnosis of schizophrenia

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Schizophrenic patients present neurocognitive disorders such as hallucinations, delirium, incoherent language, attention deficits, among others. Currently, the diagnosis of schizophrenia is based exclusively on clinical symptoms. Even so, studies have been carried out, through applying neurophysiology, using the evoked event-related potentials (ERP) associated with the schizophrenic spectrum, mainly P300, N400, Cognitive Negative Variant (CNV) and Mismatch Negativity (MMN). In this work, a systematic review was carried out to determine the most used ERP in the last ten years, as well as its diagnostic usefulness. The results obtained showed that P300 has been the most significant potential as evidence of the cognitive impairment in these patients. From all the reviewed articles, 95.8% refer that schizophrenic patients present decrease in the P300 amplitude; 41.6%, prolongation of latency and 20.8%, wave morphology variation. Therefore, the P300

represents one of the most useful biomarkers in the diagnosis of schizophrenia.
Keywords: Schizophrenia, P300, ERP, Neurophysiology, Systematic review

Relationship between the extremely low frequency band and the renin-angiotensin-aldosterone system: A systematic review of the bibliography

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Introduction: The relationship between the very low frequency component of the heart frequency variability and the renin-angiotensin-aldosterone system is a controversial subject.
Objective: To describe the relationship between the very low frequency band and the renin-angiotensin-aldosterone system.
Method: A bibliography review was carried out until January 2019 in the Scopus and Pubmed databases, using search methods. Documents in Spanish and English were used.
Results: From the 21 identified articles, 9 were used in the review. The studies reported predominance of research including patients in the second decade of life (55.56%), male (58.67%) and healthy patients (77.78% of the studies). In 22.22% of the studies, patients were exposed to psychological effects or to the use of drugs. The 55.56% of the studies were of the quasi-experimental type. These studies show a relationship between the renin-angiotensin system and the very low frequency band, both in physiological situations and in those of mental and physical stress, where there was an opposite response between the very low frequency band and the high frequency band, with a direct influence on the renin-angiotensin-aldosterone system.
Conclusions: On spite of the scarce scientific evidence, an association between the renin-angiotensin system and the extremely low frequency variation has been found. Further studies are needed, that might include large study groups and exposure to different tests causing modifications in these, in order to determine their relationship.
Keywords: Very low frequencies, Renin-angiotensin-aldosterone system, Heart rate variability.

Heart rate variability as a diagnostic tool of cardiovascular autonomic neuropathy in patients with type 2 diabetes mellitus: Outcomes of a systematic review

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Introduction: Diabetic cardiovascular autonomic neuropathy is a disease characterized by a disorder in the regulation of the cardiovascular system, in which the heart rate variability is used as a diagnostic means.
Objective: To analyze the effectiveness of the heart frequency variability as a diagnostic means in cardiovascular autonomic neuropathy in patients with type 2 diabetes mellitus using a systematic review.
Method: A review of the main electronic Spanish and English databases was carried out, being Baidu, BASE, BioMed, Google Academic, Hinari, Microsoft Academic, PubMed, Scopus, MedLine, EBSCO, Web of Science, SciELO, LILACS, Cochrane and HONCode, with the following descriptive terms: heart rate variability and diabetic autonomic cardiovascular neuropathy.
Results: After a detailed review of the documents found in the search, a systematic review of 11 articles published in the last 15 years was carried out. Most of the studies agree on the method and variables use, as well as on the importance of the heart

rate variability as a diagnostic tool.
Conclusions: The assessment of the heart rate variability proved to be effective as a diagnostic tool of cardiovascular autonomic neuropathy.
Keywords: Heart rate variability, Cardiovascular autonomic neuropathy, Type 2 diabetes mellitus

Non-linear dynamics of heart rate variability in type 2 diabetes mellitus: A systematic review

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Introduction: Non-linear dynamic of heart rate variability can be a measure of autonomic nervous system dysfunction in patients with type 2 diabetes mellitus.
Objective: To determine the role of non-linear dynamic of heart rate variability as a measure of autonomic nervous system dysfunction in patients with type 2 diabetes mellitus.
Method: The research was carried out in August 2019. Scopus, Web of Science, Pubmed, SciELO and ClinicalKey databases were used. The used descriptors were "heart rate variability" and "hrv", combined with "diabetes" and "non-linear dynamics", and the studies published in Spanish and English were included.
Results: A total of 69 articles were retrieved, of which 17 were included for a complete review, and of these last, 8 responded to the objective set for the qualitative analysis. The articles of the case-control type predominated (75%) and the most analyzed variables were the approximate entropy (62.5%) and those belonging to the detrended fluctuation analysis (50%).
Conclusions: Most of the articles agreed on the method and the used variables, as well as on the importance of assessing the non-linear parameters of the heart rate variability as a diagnostic tool.
Keywords: Heart rate, Cardiovascular physiological phenomena, Autonomic nervous system, Diabetes mellitus, Type 2 diabetes mellitus.

Science is also necessary when it comes to write a title

Hace falta ciencia también para escribir un título

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To the Editor:

Writing memorable, dignified and respectable scientific articles' titles, so to speak, is undoubtedly an art that is sometimes hard for some people. The reality is that after writing a scientific article, choosing an at-