Greek language: analysis of the cardiologic anatomical etymology: past and present

Idioma grego: análise da etimologia anatomocardiológica: passado e presente

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Abstract

Introduction: The Greek language, the root of most Latin anatomical terms, is deeply present in the Anatomical Terminology. Many studies seek to analyze etymologically the terms stemming from the Greek words. In most of these studies, the terms appear defined according to the etymological understanding of the respective authors at the time of its creation. Therefore, it is possible that the terms currently used are not consistent with its origin in ancient Greek words.

Methods: We selected cardiologic anatomical terms derived from Greek words, which are included in the International Anatomical Terminology. We performed an etymological analysis using the Greek roots present in the earliest terms. We compared the cardiologic anatomical terms currently used in Greece and Brazil to the Greek roots originating from the ancient Greek language. We used morphological decomposition of Greek roots, prefixes, and suffixes. We also verified their use on the same lexicons and texts from the ancient Greek language.

Results: We provided a list comprising 30 cardiologic anatomical terms that have their origins in ancient Greek as well as their component parts in the International Anatomical Terminology. We included the terms in the way they were standardized in Portuguese, English, and Modern Greek as well as the roots of the ancient Greek words that originated them.

Conclusion: Many works deal with the true origin of words (etymology) but most of them neither returns to the earliest roots nor relate them to their use in texts of ancient Greek language. By comparing the world’s greatest studies on the etymology of Greek words, this paper tries to clarify the differences between the true origin of the Greek anatomical terms as well as the origins of the cardiologic anatomical terms more accepted today in Brazil by health professionals.

Keywords: Etymology. Terminology as topic. Cardiology.

Resumo

Introdução: O idioma grego, base para a criação do idioma latino, está muito presente na terminologia anatômica. Muitos trabalhos buscam analisar etimologicamente os termos provindos do idioma grego. Na maioria destes, os termos aparecem definidos conforme o entendimento etimológico dos respectivos autores da época de sua criação. Portanto, é possível que os termos atualmente utilizados não estejam condizentes com sua origem no idioma grego antigo.

Métodos: Foram selecionados termos anatomocardiológicos derivados do idioma grego que constam da terminologia anatômica internacional. A análise etimológica foi realizada por meio dos radicais mais primitivos que compõem os termos. Os termos anatomocardiológicos atualmente utilizados na Grécia e no Brasil foram comparados aos radicais originários do idioma grego antigo. Utilizou-se a decomposição morfológica dos radicais, prefixos e sufixos e verificou-se o emprego dos mesmos em léxicos e textos do idioma grego antigo.

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INTRODUCTION

Anatomy is the area of medical science that deals with the structure, arrangement and function of human organs, as well as the dissection of the body with the aim of studying its various parts. Anatomy designates all parts of the human body for teaching purposes. It is an independent branch of medical science, and it is essential for understanding the clinical facts. Heart anatomy, or cardiac anatomy, is used to designate the terms related to the anatomy of the heart. The word *analysis* comes from the Greek. Since Ancient Greece, it means “examination and study of a situation or an object in terms of the parts composing its simplest elements. It has the purpose of addressing and clarifying the situation or object through the breaking up of a whole into smaller parts” [1]. Etymology is the study of the origin of the words. It studies the sources (roots) of words going back to the words that originated them [2].

The Greek Language (GL), the basis for the creation of the Latin language [3], is much present in coining terms of anatomy. The spoken language of Greece comes from a prehistoric language, the Indo-European language, which is actually a hypothetical language supported only by poorly documented evidence [3]. This language appears in a given period of the Ancient History when people coming from India join others who were already living in parts of Europe. Historically, it is concluded that, with the experience of living in society these people have developed close ties and also an almost common language [3,4]. The differentiations and peculiarities of the Greek language, however, began to develop soon after the dissociation of the Greek people (the Hellenos) from the other Indo-European peoples. This probably occurred during the third millennium BC. At least, 2000 years B.C., the Greeks were already living in their territory, which they called Elláda [3,4], known in Brazil as the Hellenic Republic or Greece.

Other most ancient languages prior to the Greek language and spoken in the same territory represented a linguistic substrate of minor importance for the GL. This fact is evidenced by glossological factors existing in that language and not found in any other language [3,4]. The GL, in spite of being the ancient language that fewer changes have undergone over the centuries, it is not grammatically or phonetically identical to Modern Greek. Deviations might have occurred in etymological terms derived from the Greek language. In Brazil, the standardization of terms occurred according to with the Parisiensia Nomina Anatomica (PNA) in 1955. Later, in 1965, it was referred to as Nomina Anatomica (NA). It originated in 1998 the new corpus of anatomical terms called Anatomical Terminology. Since this new corpus was adopted, there is a constant search for consensus. It has been revised, expanded, and modified four times [5].

In several studies similar to the present one, the words are defined accordingly to the authors’ etymological understanding at the time of its creation abroad. Thus, the etymological definitions of the terms currently used are not always consistent with their origin, the ancient Greek language (AGL).

The objective of the present study is to analyze the etymology of the terms of the heart anatomy derived from the Greek language through its more ancient radical and to compare it to the etymological definition given currently in Greece and Brazil.

METHODS

As an initial criterion, in order to perform an analysis of the heart anatomy, we selected terms derived from Greek language contained in the international anatomical terminology. We excluded all the terms derived from Latin. We performed an etymological analysis of the roots used to build the most primitive terms returning to the origins of the AGL and relating them to the terms currently used in Greece and Brazil in their present anatomical terminology. Due to the antiquity of the language, it was also
necessary to verify the use of terms in various stages of history and analyze them as the meaning contained in the respective texts and passages. Finally, we carried out a cross-information. Therefore, a criterion for selection was the diversity of sources for bibliographic analysis. We gathered all forms of use of terms of various areas of knowledge. We used etymology books and Greek dictionaries not translated into Brazil from Greek writers and teachers [3,6,7]; philosophy dictionaries and literature [1,8]; Brazilian etymological dictionaries [9-15], specific American and French etymological dictionaries [16-19]; literature and history of the Greek language [4]; translated literature related to several epochs; events and people of Ancient Greece [20-23], and specific articles about etymology [24-26].

In order to obtain the correct source of terms, their orthography in the Greek language has also been considered, once the linguistic analysis is critical to distinguish between etymological meanings. We examined the use of the studied terms by means of references related to ancient sources, from the Epics of Homer to the references of Aristotle, and we compared the most recognized international etymological lexicons and encyclopedias, including the Greek sources with other Brazilian studies. We did not consider the translation given at the time of the creation of the terms that most often occurred outside Greece. We used to accomplish that, the morphological decomposition of the roots, prefixes and suffixes. We examined the use of the roots in texts of the AGL.

RESULTS

Terms analysed:

Standard term in Brazil: ANASTOMOSE
English: Anastomosis
AGL term: αναστομώ(v.) (pronunciation – anastomô) – from ανά “up repeatedly” e στόμα “mouth”
MGL corresponding term: αναστόμωση (pronunciation – anastómossi)

Standard term in Brazil: ANATÔMICO
English: Anatomical
AGL term: ανα (pronunciation aná) / τέμνω(v.) (pronunciation – témno)
MGL corresponding term: ανατομικός (pronunciation – anatomicôs)

Standard term in Brazil: ANGIOLOGIA – ANGIO
English: Angiology - Angio
AGL term: άγγος (pronunciation – angós) / λόγος (pronunciation – lógos)
MGL corresponding term: αγγειολογια (pronunciation – anguiologuía) / αγγίζο (pronunciation – angúio) / λόγος (pronunciation – lógos)

Standard term in Brazil: AORTA
English: Aorta
AGL term: αείρω(v.) (pronunciation – aíro) ‘lift up, tie, fit into, hang’
MGL corresponding term: αορτή (pronunciation – aortí)

Standard term in Brazil: ARTÉRIA
English: Arteria
AGL term: αρτώ(v.) (pronunciation – artô) “hang, hold it high”
MGL corresponding term: αρτηρία (pronunciation – artiría)

Standard term in Brazil: AUTÔNOMO
English: Autonomous
AGL term: αυτόνομος (pronunciation – aftônomos) “regulated by its own laws”
MGL corresponding term: αυτόνομος (pronunciation – aftônomos)

Standard term in Brazil: BRONCO- (MEMBRANA BRONCOPERICÁRDICA)
English: Broncho
AGL term: βρόχω (approximated pronunciation – bróco) “swallow, devour”
MGL corresponding term: βρόγχος (approximated pronunciation – vrôncos)

Standard term in Brazil: CARDÍA - CARDIO-
English: Cardio-
AGL term: καρδία (pronunciation - cardía) “heart”
MGL corresponding term: καρδιά (pronunciation – cardiá)

Standard term in Brazil: CIRÚRGICO
English: Surgical
MGL corresponding term: χειρουργικός (pronunciation – quirurguikôs)

Standard term in Brazil: CLÍNICO
English: Clinical
AGL term: κλίνη (pronunciation – clíni) “hospital bed” / -ικος (pronunciation – ikos) “relative to”
MGL corresponding term: κλινικός (pronunciation – klinikôs)

Standard term in Brazil: CORONARIA
English: Coronary
AGL term: κορώνη (pronunciation – korôni) “recurvate”
MGL corresponding term: stefaniaia (pronunciation: stefaniéa)
Standard term in Brazil: **DIAFRAGMA**  
(**DIAFRAGMÁTICO**)  
English: Diaphragma  
AGL term: διαφράσω (pronunciation ‘diafrásso’)  
“blockade, I make a barrier”  
MGL corresponding term: διάφραγμα (pronunciation ‘diafragma’)

Standard term in Brazil: **EMBOLIA**  
(EMBOLIFORME)  
English: Embolism  
AGL term: εμβάλλω (pronunciation – embálo)  
“something thrust in” / forme (Latim term)  
MGL corresponding term: έμβολο (pronunciation – énvoló)

Standard term in Brazil: **ENDOCÁRDIO**  
English: Endocardium  
AGL term: ενδόσ (pronunciation – endós) “inside” / καρδία (pronunciation – cardía) “heart”  
MGL corresponding term: ενδοκάρδιο (pronunciation – endokárđio)

Standard term in Brazil: **ENDOTELIO**  
English: Endothelium  
MGL corresponding term: ενδοθήλιο (pronunciation – endothílio)

Standard term in Brazil: **ENDOTORÁCICA**  
English: Endothoracic  
AGL term: ενδόσ (pronunciation – endós) / θώραξ (pronunciation – thorax) “armour”  
MGL corresponding term: ενδοθωρακικό (pronunciation – endothorachikô)

Standard term in Brazil: **EPITÉLIO**  
English: Epithelium  
AGL term: επί (pronunciation – epi) / θήλιο (pronunciation – thilí) “nipple”  
MGL corresponding term: επιθήλιο (pronunciation – epithílio)

Standard term in Brazil: **ESPLÁNCNICO**  
English: Splanchnic  
AGL term: σπλαγχνό (pronunciation – splâncno) “viscus”  
MGL corresponding term: σπλαγχνικός (pronunciation – splâncnikôs)

Standard term in Brazil: **FRÊNICO**  
English: Phrenic  
AGL term: φρήν (pronunciation: frin) “mind”  
MGL corresponding term: φρένις (pronunciation: frénes)

Standard term in Brazil: **GÂNGLIO**  
English: Ganglion  
AGL term: γαγγλίον (pronunciation – ganglíon)  
“uncertain etymology”  
MGL corresponding term: γάγγλιο (pronunciation – gânglio)

Standard term in Brazil: **HISTOLÓGICO**  
English: Histological  
AGL term: ιστός (pronunciation – istós) “tissue” / λόγος (pronunciation – logos) “treatise, discourse”  
MGL corresponding term: ιστολογικός (pronunciation – istologukôs)

Standard term in Brazil: **ISTMO**  
(ISTMO DA AORTA)  
English: Isthmus  
AGL term: ιθμός (pronunciation – ithmós) “slight constriction”  
MGL corresponding term: ισθμός (pronunciation – isthmós)

Standard term in Brazil: **LINFA**  
(LINFÁTICO - LINFONODOS)  
English: Lymph  
AGL term: νύμφη (pronunciation: ninfi) “mythological being”  
MGL corresponding term: νύμφη (pronunciation: ninfi)

Standard term in Brazil: **LOBO**  
(ARTÉRIAS LOBARES - ARTÉRIA LOBAR MÉDIA)  
English: Lobus  
AGL term: λοβός (pronunciation – lovôs) “A rounded projecting part bounded by fissures, sulci, connective tissue septa, or other structural demarcations”  
MGL corresponding term: λοβός (pronunciation – lovôs)  
Standard term in Brazil: **MIÓCÁRDIO**  
English: Myocardium  
AGL term: μυς (pronunciation – mi) “little mouse” / καρδιά (pronunciation - cardiá) “heart”  
MGL corresponding term: μυοκάρδιο (pronunciation – miócárdio)

Standard term in Brazil: **MIOLOGIA**  
English: Myology  
MGL corresponding term: μυολογία (pronunciation – miologya)

Standard term in Brazil: **PARASSIMPÁTICO**  
English: Parasympathetic  
AGL term: παρά (pronunciation – para) “parallel to” / συμπαθώ(v.) (pronunciation - simpathô) “I am touched by
the emotions of another person”

MGL corresponding term: παρασυμπαθητικός
(pronunciation - parassimbathitikós)

Standard term in Brazil: PERICÁRDIO
English: Pericardium

AGL term: περικαρδίο (pronunciation – perikardió)
“around the heart”

MGL corresponding term: περικάρδιο (pronunciation – perikárdio)

Standard term in Brazil: SIMPÁTICO
English: Sympathetic

AGL term: συμπαθητικός (pronunciation - simpathêtikós) “I am touched by the emotions of another person”

MGL corresponding term: συμπαθητικός (pronunciation – simbathitikós)

Standard term in Brazil: TRÍGONO (TRÍGONO FIBROSO
-DIREITO E ESQUERDO DO CORAÇÃO)

English: Trigonum

AGL term: τρί- “três” / γονία (pronunciation – gonia)
“knee/genu, angle”

MGL corresponding term: τριγώνο (pronunciation: trigono)

DISCUSSION

The evolution of a language is extremely dynamic, which causes some difficulty in understanding the term real meaning. The words mentioned should be related to feelings, aggregate cultural values and customs of each civilization [4,9]. When we deal with such an old language as the Greek language, the words are born for a purpose and over the centuries, these words can acquire a totally different meaning [9]. Ruth Benedict, the anthropologist, in her book “The Chrysanthemum and the Sword,” written in 1946, says that the culture is like a lens through which we view the world. “The lens through which a nation sees life is not the same as other nation uses. It is difficult to be conscious with eyes through which we look” (Benedict, 2002). For example, the term soma that in the modern Greek has always meant the body, in the Ancient Greek of Homer did not have that meaning. As a matter of fact, it had no meaning in living man. The term “soma” came to exist only after death, i.e., the closest meaning transferred to the present day would be “corpse” [9]. Giovanni Reale says in his study: “the language is much more than an instrument by which thought expresses the thing, as it is the language itself that brings to light the thing and allows the mind to think of it. The language is never susceptible to a perfect translation to another language, because to reach an understanding and a complete expression of the messages communicated in this language, we would have to be a direct participant in the world in which that language is expressed” [9].

The term cardio- has been used since Ancient Greece with the same meaning of “heart.” The true origin of the term lies in the root of the Indo-European word ‘kerd’, which already had the meaning of heart [4]. The same term is also found in the Epics of Homer as a synonym for cardio- [9]. In Ancient Greece, besides being considered a physical organ, the heart - so often reported in archaic writing - was also considered as an organ of feeling. Until a certain period of the antiquity, the Greeks believed that the heart was the seat of the center of the intellect. Once the organ responds promptly to any strong emotion, many emotions were attributed to it such as joy, pain, fear, anger, tenderness, etc. [4,9]. Remnants of that thought linger today as the heart is reported as an organ of feeling, however, always metaphorically. In fact, for the Homeric man these feelings were the proper functions of the heart.

Generally, in Brazil, simple anatomical terms derive from Latin, while the compound terms derived from the Greek. Therefore, cardio- is only found as a form of combination [16]. This is what happens in cardiogenic [Of cardiac origin], cardiology [cardio- + G. logos, study], cardiogram [cardio- + G. gramma, a diagram], etc. In the international anatomical terminology, we can find the term cardia, which derives from the same Greek root [G. kardia, heart]. However, it is used to designate the area of the stomach close to the esophageal opening (cardiac orifice or cardia) that contains the cardiac glands [2,3,14]. According to Jean Riolan, the term cardia was used by the ancients as a synonym for the mouth of the stomach [14].

For example, many of the heart anatomy terms we use today such as cardiology, anatomy, and anastomosis have a French origin. These are loanwords borrowed from the roots of the Ancient Greek Language [3,4]. The term anastomosis has a French origin borrowed from Greek words. It means the communication between two tubular organs, which can occur naturally due to illness or surgery. Galvão [11] translates it as to the action of discharge. Fernandes [14] puts it another way: “through the mouths.” Etymologically, the term comes from two roots of the Ancient Greek Language, ανα “up, repeatedly, consecutively, continually” and στόμα “mouth” with this same meaning from the Indo-European language as in ‘-Stom’: “mouth” [3].

The term angiography comes from the roots ‘άγγος’ and λέγω (v.). The term αγγείο, from the Modern Greek Language, has meanings as the following: container for storage or transport of fluids (jar); conductive tubes in the body conveying blood or other organic fluids (arteries, veins, lymph vessels) [3,6,16]. In the Ancient Greek Language, the root ‘άγγος’ had the meaning of “compartment, pot, vase, amphora. The term “Λόγος” comes from λέγω (v.)
meaning “speech, discourse” [3,4,6]. Although derived from the Ancient Greek Language, the term angiology has its origin in France as 'angiologie'. There was a modification of the spelling over the years. This facilitated the pronunciation, and the term angiology entered common usage in Brazil. Semantics was maintained. The term “anatomical” is used both in Brazil and Modern Greece (ανατομικό). It has the following meaning: relating to anatomy. The term anatomy had its origin in France. It was borrowed from the roots of the Ancient Greek Language ana (ανα) “from the bottom up, repeatedly” and têmno (τέμνω) “to cut, to open” [3,14]. As a science that studies the various body structures, anatomy has been used in Greece since 1738 [3]. It was translated by Edgar A. M. Morales as: “cut on all sides of an animal body in order to see its forms and to study its various parts” [26].

The term artery is used both in the Modern Greek Language (αρτηρία) and in Brazil (arteria). Considered by the ancients as “air conduits [air + thiron], once blood was not found in the arteries after death [14]. A primitive meaning was “trachea”. At the time of Aristotle, it was called trachea-artery [11]. However, the most primitive root, that is, the true origin in the Ancient Greek Language is 'αρτό' (pronunciation - artô), which means “hang, hold high” [2,3,6]. There is a relation of this term under the root ‘αείρω’, which means “float, lift, connect, fit.” Therefore, it is related to the term aorta. The term αέρα (pronunciation - aéra) also comes from the root ‘αείρω’, which means “air” [3]. The term aorta is used both in Modern Greek Language (“Αορτή”) and in Brazil (“aorta”). The term of the Ancient Greek Language “αείρω” (v), to suspend, to lift, to connect, to fit, etc., gave birth to the noun αορτή, which means “suspensor” (pronunciation - aortî) [3]. Thus, the aorta might be defined as the artery connecting (binds) the heart to the whole arterial tree, and also as being the site of “setting” of the entire system to the heart. Aristotle defined as flebos the term ‘αορτή’, which means “swallow, devour.” The origins of the term are found in the Ancient Greek Language κορώνη (pronunciation Koróni). It means “crown” or “hooked/recurved” [3,18,19]. The term used today in Brazil comes from ‘the Latin ‘Corona’, which is a loanword from the term crown. However, it was borrowed from the Ancient Greek Language whose meaning was hooked/recurved or crow [3,18,19]. In the Modern Greek Language, the term corresponding to coronary is ‘stefania’, which comes from stephane (pronunciation stefanê) that means crown. Although the term is used even in Greece with the meaning of crown (stefania), its etymology relies on the Ancient Greek κορώνη, which meant ‘hooked/recurved’ [3,18,19]. Etymologically, the term could be translated as ‘curved or bent near its tips like the beak of a crow’.

The term autonomus has been used since the Ancient Greece as ‘αυτόνομος’ (pronunciation afônômos) with the meaning of “something or someone that is governed by its own laws; it does not depend on another person; independent; having independence or freedom from control by external forces” [1,3,6,7]. In the Modern Greek Language, the corresponding term is the same: αυτόνομος (pronunciation - afônômos). It comes from the terms of the Ancient Greek Language αυτό, meaning “own, for my own account” and νόμος, meaning “law.” Autonomus was also used in the field of philosophy to designate the independence of the will toward an object of desire and as the ability to establish itself as a proper law [1]. The surgical term, “χειρουργικός” (pronunciation: quirurguikós), has been used in medicine since Ancient Greece. It comes from the roots of the Ancient Greek Language χείρ (approximate pronunciation: Kir), which means “hand”, εργόν meaning “work”, and the suffix –ικós, meaning “relating to” [3,16].

The term, “κλινικός” (clinical), is used in medicine both in Greece and Brazil with the same meaning: “what is relative to the medical practice for the patient’s therapy.” The meaning of this term is relatively new, and it appeared in France deriving from the term “clinique.” Centuries before, Galen had already referred to the term ‘κλίνη’ as “hospital bed.” All related terms (clinical, clinical, clinoid, etc.) derived from the same root of the Ancient Greek Language, “κλίνη”, which in turn comes from the term ‘κλίνω’ (v), which also comes from the AGL meaning “to bow, to tilt.” In ancient writings, it specifically refers to the inclination of the body in any direction from the standing position: to incline, to lie down.

The term diaphragm is used in the area of Human Anatomy to designate the main respiratory muscle separating the thoracic and abdominal partitions. It comes from the Greek term ὑδατοράσσω (v) meaning “a partition wall, a barrier” [1,3]. The term derives from the following roots: ‘Ana’ = ‘through’ and frassós = ‘encircle, surround, enclose’ [1,3,16]. Emboliform is a hybrid term (of a confusing nature), which comes from the Greek root ἐμβόλο (pronunciation Envolô). It is also used in Brazil with a medical meaning of “mass of clotted blood or any substance not dissolved in the bloodstream able to occlude blood flow.” Although it has been translated as ‘wedge’, the true origin of the term ‘ἐμβόλο’ (from the Ancient Greek Language, is “to put into” [3]. The term was used by Hippocrates to describe the replacement of a bone in place [12]. It also comes from two roots of the Ancient Greek Language, ‘εν’ (pronunciation - en), which had the meaning
of “inside,” “part of” + ‘βόλλοι’ (v.), which meant “to put” [3,6]. In Homeric texts, the term was already used in the meaning of “to put.” Currently, in Greece, the term ‘εμβολία’ means a vaccine (plural, εμβολία).

The prefix ‘endo-’, from the ancient Greek ένδον (pronunciation - éndon), is a compound term, and it is present in endocardial endothelium, endothoracic, etc. Its origin arises from two roots of the ancient Greek ‘εν’ (pronunciation - en), which means “inner, absorbing, or containing,” and ‘-δον’ meaning “home,” “inside the house” [3,6]. However, this word root used to express the word house contained in itself a “metaphoric” sense, referring to our most intimate environment, the body’s internal environment [1,3]. Transcribing it according to its use in ancient texts, we reach the meaning of “inside our own body.”

The prefix peri-, which composes the word pericardium, is a common prefix in terms derived from the Greek language, as well as the prefix endo-. The prefix peri- has its origin arising from the AGL word “περίς” (pronunciation - periks). It had the meaning of “around, about, near, on all sides” [3.16]. In the Modern Greek Language, the term ‘περί’ (pronunciation - peri) carries the following meanings: regarding, more or less, around, or near [16]. Endothelium comes from the ancient Greek Language term ‘ένδον’, which means “inside the body” and the term ‘θηλή’ meaning “nipple,” that in turn arises from the term θηλόω, which indicates “to suck, to breastfeed.” The term ‘θηλίκος’ is related to female gender. The same word root forms the word “feminine,” which in the Greek language means ‘θηλικός’ (pronunciation - thilikôs). The term thorax (θώραξ) had the meaning of “armor” in ancient Greece. It comes from the word endothoracic. It referred to a type of leather or metal armor that protected the warriors’ chest and back.

Term sympathetic has its origin in the ancient Greek Language ‘συμπάθω’ (v.) (pronunciation simbathô). It first meant: “I am touched with the emotions of another person; I feel the pain of another person.” It was formed by the ancient Greek roots ‘συμ’ and ‘πάθσκω’ (pronunciation páthsco) meaning “with, together” and “I suffer,” respectively. It is a term related to suffering caused by a disease [2,3,6]. The prefix para- (παρά - pronunciation para), like in the word paras sympathetic, is quite common in the Greek language. It conveyed the meaning of “adjacent, alongside, near, parallel to.” In the Modern Greek Language, the term παρά (pronunciation - parâ) has several meanings, such as “on the contrary, reduction, lack of, less, imposition or exception (παρά) [I do not want anything besides your help], alternation [(day = παρά) (every other day)], near, far from, and at the side of [16].

The term splanchnic (σπλαγχνικός) refers to “the viscera.” It has its origin arising from the ancient Greek Language σπλάγχνο, which means “virus.” The term is also related to the word σπλήν (pronunciation - splín). It conveys a similar meaning in the ancient Greek Language. In the Modern Greek Language, the term ‘σπλάγχνο’ refers to the viscera and the term ‘σπλήν’ to the spleen. The term lobe (κοφός) both in Greece and Brazil is used in Human Anatomy to describe each part of the same organ bounded by fissures, sulci, connective tissue septa, or other structural demarcations. In the ancient Greek Language, it came from the word ‘κοφός’, which had the meaning of “rounded projecting protrusions bounded by a fissure or a section” [3].

The term lymph comes from the ancient Greek word ninfi. It arrived in Brazil through the Latin word lympha. It was translated by many authors as clear spring water [3,12]. However, the term ninfes (nymphs) refers to minor youth female nature deities, which always wear white dresses. They are believed to dwell in mountains and groves, by springs and rivers, and also in trees and in valleys and cool grottoes. Arising from the same term, the Greek nífi (νύμφη) (nymph) has “bride” and “veiled” among its meanings. The correlation of similar terms of the Greek language is done through the words “freshness, youth, clarity, purity, serenity” [3,6]. The Greek root thelimum (from the Greek θήλαμο) as found in endothelium and epithelium, in most studies of Greek etymology is reported as a “nipplelike structure/mamma” [1,15,16] due to the similarity of this tissue with the nipples [15]. According to Greek works, the root has its origin in the Indo-European language with the meaning “to suck, to breastfeed” [3].

Since the Epics of Homer up to the time of the great Greek philosophers, the Greek term phren- has been cited several times. It has very different meanings. In part, the term is related to a physical body, but most often it appears linked to the emotions and in general to the mind [1,8]. The term also appears as phren-, indicating diaphragm [8]. However, this does not seem to be the first definition or translation given by Homer. In most of the passages, the term relates to various feelings and emotions. So one can understand why it is often found translated as “heart.” The term phren is found with two meanings: mind and heart [3,8]. Although in most of the passages from the Epics of Homer, the word phren is found with the meaning of mind, in the Iliad it also appears with the meaning of heart [8]. A convincing explanation for this translation of the term phren as diaphragm or heart existed in a given period of the antiquity; the Greeks regarded the diaphragm, near the heart, as the center of the intellect! [4,8].

CONCLUSION

Most of the terms from the Greek language were created outside of Greece. They were loanwords - a word borrowed from a donor language and incorporated into a recipient language. The terms were borrowed from the roots of the Ancient Greek Language. Through a survey of the origins
of the Greek language, we could verify that there is a wide divergence between the etymological meaning perceived by the authors and the etymology of the roots used to build the international standardized terms of the heart anatomy. There are many studies that address the real origin of words (etymology), but most of them will not go far beyond the birth of the term, which is usually composed of two or more radicals from the Ancient Greek Language. We analyzed many terms according to the meaning given to them at the time of their creation, leaving aside the analysis of the primitive radicals. Obviously, one cannot reach absolute conclusions on this specific area, but in order to carry out this search it is necessary to consider the precepts of analogy and language, especially for a language as complex as the ancient Greek. The present study compared the world’s greatest works on the etymology of Greek words published in several languages, including citations on the earliest sources of the AGL: the Epics of Homer. Thus, it was possible to clarify some discrepancies between the true origin of the heart anatomy terms and the most accepted terms today in Brazil by health professionals.

REFERENCES

APPENDIX 1: COMMON PREFIXES AND SUFFIXES

A - AN
AGL prefix: α – αν [pronunciation - an (when before a vowel)]
MGL: α – αν [pronunciation - an (when before a vowel)]
The prefix indicates “no, not, without, lack of, apart”

ANA
AGL prefix: αÌνα (pronunciation – aná) – “up”, “upward, upward movement” or “something that occurs for the first time or subsequently”. Uncertain etymology
MGL: ανα (pronunciation – aná) – It indicates something that (1) goes up, moves upward, (2) continuously happens, (3) split up, (4) - distribution through a space, (5) - distribution for a period of time.

APO
AGL prefix: από (pronunciation – apô) “away from, separate from, separation”
MGL: από (pronunciation – apô). It indicates: 1- starting place; 2- starting time; 3- comparative; 4- cause.

EN
IGA prefix: ev (pronunciation – en) Meaning: (1) within 2- during, while, whereas, as long as.
MGL: ev (pronunciation – em) It indicates: 1- inside, within, entrance; 2- sum, conquest, possession; 3- increase of

ENDOS
AGL prefix: ἐνδόν (pronunciation – endós). Etymologically the term comes from ev (pronunciation – en) that meant “within” “inner” and -δον that meant “house”, “inside the house”. However, archaeological finds from the Greek language, refer to its meaning as “within the body.”
MGL: ενδο (pronunciation – endo) Meaning “inner”, “within”.

EPI
AGL prefix: επί (pronunciation – epi). It indicates 1- over, upon, above; 2- sum; 3- immediately after, subsequently, after.
MGL: επί (pronunciation – epi). It indicates: 1- over, upon, above; 2- sum; 3- something else, the best if a group; 4 - immediately after, subsequently, after

HIPO
RAGL prefix: υπο (pronunciation – ipo) Meaning: “below, under”
MGL: υπό – υρ (pronunciation – ipô) Meaning: 1- below, under; 2- under the effect of; 3- Someone who has a hierarchically lower position; 4- something that happens hiddenly, under the table, something that occurs at lower levels 5- backward movement, back; 6- something that exists in small amounts or for a short time; 7- something characterized by failure, failure, lack of, something that is below the limit; 8- it indicates something more intense than normal.

ÍDE (OIDE)
AGL prefix: eidos (pronunciation – idôs) – The first meaning of ‘eidos’ in AGLI was ‘like the shape of’, a probable link with the term ‘weid’ from the IEL, which meant ’I know, I see’.
MGL: 1- in the shape of; 2- species or kind.

LOGOS
AGL root: λόγος (logos) that comes from ‘λέγω’ (lêgo) Meaning “I form a group, I gather information” and afterwards I “speak”
MGL: λέγω (pronunciation – lêgo) Meaning “to express something through speech”.

MI(O)- / MY(O)-
Combining root meaning relating or pertaining to a muscle.

OIDE
AGL: eidos (pronunciation – idôs) – The first meaning of ‘eidos’ in AGLI was ‘like the shape of’, a probable link with the term ‘weid’ from the IEL, which meant ’I know, I see’.
MGL: 1- in the shape of; 2- species or kind.

PARA
AGL prefix: παρά (pronunciation – para) – Meaning “parallel to, by the side”
MGL: παρά (pronunciation – pará) – It indicates 1- contrary to; 2- decline, miss, lack, less (he lost the game by 5 points - παρά (by)); 3- exception or imposition (I do not want anything from you (beyond) (παρά) your help); 4- alternation (every two days); 5- place, locality: position in relation to something (close by, far away, by the side of).

PERI
AGL prefix: περί (pronunciation – périks) Meaning “around; on all sides”
MGL: περί (pronunciation – peri) Meaning 1- in respect to; 2- more or less; around; 3- close by, around.

SIN-
AGL root: ξύν (pronunciation – ksín) Meaning “with, together with, along with”
MGL: συν- (pronunciation – sin) it is also used as συ-, συμ-, συγ-, συλ-, συσ και σύρ. It indicates: 1- something that happens together or with the help of another; 2- a common feature in more than one object or person; 3 – related to more than one thing or person.