Medical Case Reports as a Genre of Academic Discourse (Grammar and Lexical Features)

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Why Do Research Papers Get Rejected?

- Poor language: spelling and grammar mistakes,
- inappropriate use of terminology,
- failure to conform to a specific academic style

- all this (among others) can create a bad impression on the reviewers and result in the rejection, even if the research findings are valid.

English as a Global Language in Science and Technology

- The prevalence of English as not only the ***lingua franca***, but as an important transmission medium of scientific knowledge in our time compels the professionals in all spheres of science and technology to render their research results in English in order to be understood and acknowledged.
- In order to achieve this, it is necessary to acquire the so-called ***"academic literacy"*** in the English language.
- Therefore, medical professionals are expected to be not only fluent in English, but also well-versed in the style and standards of the English language academic discourse.

Academic English as a Foreign Language

- Academic writing in English possesses a number of specific features and norms.
- It is crucial for medical professionals to know the peculiarities of academic writing in English in order to be able to produce effective English language academic discourse and thus share their knowledge and findings with fellow researchers from all over the world.
- It is well established that transfer of academic norms of a person's first language (mother tongue) to a foreign language often significantly impairs the quality of academic writing and speaking (Crandall & Peyton, 1993; Swales, 2012).
- Therefore, the major challenge for researchers is the difficulty in **transition to academic standards of a foreign language.**

Lecture Outline and Objectives

In this lecture, we will:

- focus on relevant grammar structures in medical case reports (MCRs) as a unique genre of medical discourse;
- review the most important English academic vocabulary, essential for improving the quality of MCRs writing;
- analyze the samples of medical discourse from *PubMed* database.

Medical case reports (MCRs)

- What is a medical case report?
- Why are MCRs written?
- Who is the target audience of MCRs?

MCRs as a genre of medical discourse

- Medical case reports (MCRs) constitute a highly valuable genre of medical literature, since "there is nothing like a good case study for arousing interest, gaining attention, ensuring encouragement, and enabling participation" (Pattison et al. 1999).
- Case reports are commonly considered "stepping stones" for further clinical research: "prospective, retrospective and observational randomized controlled trials are always constructed on the basis of data obtained from individual patients" (Protopapas et al. 2011).
- Apart from their significant role in the dissemination and promotion of medical knowledge, case reports are also valuable in terms of their pedagogic and ethic potential due to their "inextricable connection between narrative and moral knowledge and experience" (Hinkel 2013).
- It is crucial for medical professionals **to take into account all these peculiarities** in order to be able to produce effective English language MCRs since they are an indispensable tool for the **dissemination of medical knowledge all over the world.**

MCRs as a genre of medical discourse

- This genre is exceptionally important as an effective tool of research advancement and for training of future doctors, and therefore needs careful examination and analysis.
- Thus, the ability to produce the effective English language discourse of MCRs is a vital prerequisite for the dissemination and enhancement of medical knowledge all over the world.

Medical case report

- MCRs are traditionally structured in **abstract**, **introduction**, **case presentation**, **discussion**, **conclusion**, **informed consent** and **references**. Each section requires particular verb tense.
- Our research (Lysanets Yu. et al. "Stylistic Features of Case Reports as a Genre of Medical Discourse". *Journal of Medical Case Reports*, 2017, doi: 10.1186/s13256-017-1247-x) focused on grammar and lexical structure of the published material in this journal.
- The material of the research is the corpus of MCRs from *Journal of Medical Case Reports*, published within the last 5 years (2011 to 2016).
- *Journal of Medical Case Reports (JMCR)* is a peer-reviewed open access journal, published by BioMed Central (the United Kingdom), and indexed in Scopus.

Medical case report

- The functions of MCRs are: (1) describing a condition for the first time, and/or (2) warning other physicians.
- **Brevity** and **conciseness** are usually the most distinctive features of MCRs as a genre. In general, the author's aim is to transfer the **maximum** amount of important information using the **minimum** linguistic tools.
- Other unique characteristics of MCRs as compared with other genres of medical discourse are their **narrative style**, **personal tone**, **educational** and **instructive intentions**. That is to say, the major objective of MCRs is to "narrate", to describe an interesting case to fellow researchers in order to warn them or to improve treatment techniques.
- These stylistic features determine the entire structure of MCRs, as well as the choice of lexical units.

Key features of MCRs

(in: Lysanets Yu. et al. Stylistic Features of Case Reports as a Genre of Medical Discourse. *Journal of Medical Case Reports* (2017) 11: 83)

- We found that the above-mentioned communicative features of MCRs (i.e., narrative style, personal tone, etc.) determine the choice of lexical units and grammatical structures: the prevalence of **active voice sentences**, **past simple tense**, **personal pronouns**, and **modal verbs**.
- The use of **simple past tense** is a predominant feature of MCRs.
- This peculiarity results from the very nature of MCRs as narrative (that is, "storytelling") texts: their primary aim is to give an account of past events.
- Another important aspect of MCRs is the use of **active sentences** which is also associated with narrative style, as well as with educational intention of MCRs as a genre: the authors of MCRs describe the unusual problem they have faced and handled, thus sharing their experience and a lesson they have learned from it.

MCRs are notable for their use of active sentences in the simple past tense (309 cases):

- "***We maintained*** anesthesia with inhaled desflurane at 5% and intravenously administered remifentanil at 0.2 μg/kg/min in a fraction of inspired oxygen of 0.45 (…) At that moment, ***we administered*** 20 mg ephedrine, 300 μg phenylephrine, and 0.03 μg/kg/min norepinephrine to maintain adequate blood pressure (…) ***We did not detect*** any problems with his respiratory parameters (…) His systolic blood pressure ***remained*** at 40 mmHg for 10 min; ***we performed*** chest compressions to maintain his blood pressure"
- "***We did not find*** cases with such an evolution in the literature, but ***we found*** some cases of spontaneous expulsion of ileal lipoma per rectum"
- "***We found*** electrogram amplitude to be normal throughout the right ventricle (…) In this case ***we used*** cryoablation to avoid the pain associated with radiofrequency delivery"

The use of active sentences in the simple past tense in MCRs

- "An extraoral examination ***revealed*** a diffuse swelling of her left nasal alar base without tenderness"
- "Two patients with EHPVO ***presented*** with micrognathia, restricted mouth openings, and facial asymmetry"
- "Brain magnetic resonance imaging (MRI) ***did not identify*** any abnormalities, but an ophthalmic examination ***revealed*** vertical supranuclear gaze palsy (VSGP), and analysis of peripheral blood and bone marrow biopsies ***identified*** vacuolated histiocytes"
- "…***we considered*** electroconvulsive therapy; clinicians may opt for electroconvulsive therapy at an earlier stage in similar psychiatric emergencies (…) ***We hypothesized*** that our patient's poor clinical response was from a genetic polymorphism in the drugmetabolizing activity of cytochrome P450 enzymes".

Our research has also detected the use of present perfect, present simple, future simple tenses and passive voice which also serve the particular communicative purposes in certain sections of MCRs.

Less frequently, passive voice constructions are also observed in MCRs (15 cases):

- In particular, they are used for the purpose of giving recommendations and warning other physicians (that is, for implementation of instructive functions).
- In this context, the modal verb "should" plays a significant role: "The psychological aspect of this condition ***should not be underestimated*** because he was ashamed of his front teeth and was not able to smile"; "IMA malposition is a rare but potentially lethal complication of CVC that ***should be considered*** in risk factor assessments and the management of severe complications resulting from CVC"; "…however, the risk of infection ***should be weighed*** against the advantages of this procedure"; "We hypothesize that a difficult intubation ***should be anticipated*** in these patients".

Active/Passive Voice

- Passive voice is used in academic writing, since it is impersonal and thus more objective (e.g., "the tolerability of this surgical technique **was examined**").
- However, passive voice can be imprecise and confusing; it can slow the reader down and disrupt the sentence focus.
- Therefore, it is usually appropriate to use **a good balance** of passive and active forms within academic writing.
- In general, passive voice is used to describe a **process**, the **results** of study, or similar material which is **objective** in nature. Active voice is used to describe **actions**.
- Thus, the choice of active/passive voice depends on the context. Clarity of meaning is paramount in medical research. The aim must be to avoid any possibility of confusion in the written and spoken meaning.

The present perfect tense (180 cases)

- The **present perfect tense** is used to render the author's reflections on the problem in a broader context (for instance, the results of other researchers, which are found primarily in the "Background" section of MCRs):
- "There ***have been*** a number of previous reports of CVC malpositioning in the internal mammary vein".
- "Other studies ***have demonstrated*** the ability of ablation to prevent recurrence of VF in patients with a structurally normal heart, but these studies also ***have been*** of small patient cohorts followed only for a few years".
- "Studies ***have reported*** a sensitivity of 87–100 % using endoscopic ultrasound in detecting solid pancreatic lesions".
- "Other authors ***have noted*** that the latency period ranged from 3.5 to 33 years (median 10 years)".
- "To date, authors of 11 other case reports ***have described*** aneurysms of the adrenal vasculature, with none of these cases arising from the adrenal vein".
- "Some case reports ***have described*** platelet normalization shortly after starting antibiotic therapy without a need for platelet transfusion".
- "Later prospective studies ***have proved*** that lowering this trigger to 10 × 109/L in stable patients with cancer or blood disorders is still safe".

The past perfect tense (34 cases)

- The **past perfect tense** can be applied to describe earlier events from the case history:
- "Of note, he ***had undergone*** a THA 31 days prior to his transfer…"
- "Four months later, his proteinuria ***had reduced*** to 1.4 grams/day, creatinine ***had improved*** to 155 μmol/L".
- "A computed tomography (CT) of her abdomen ***had shown*** nonspecific findings suggestive of colitis".
- "Two weeks previously, she ***had given*** birth at 40 weeks (…) there had been no antenatal symptoms (…) our patient ***had complained*** of dysuria (…) the baby ***had not required*** hospitalization".

Contextual use of other verb tenses in MCRs

- Our research (2017) has demonstrated the relatively seldom use of the **future tense** in MCRs (16 cases).
- Occasionally, the authors use it in the "Conclusions" section to provide a perspective for further research or a prognosis: "An ultrasound-guided approach rather than the use of a landmark technique to insert CVC ***will help***"; "Patients ***will tolerate*** the procedure with adequate airway preparation using topical anesthesia"; "The tooth ***will preserve*** the remaining alveolar ridge and help the adolescent psychologically".
- The use of the **present simple tense** is also comparatively infrequent and it is generally used in the opening section of MCRs, as well as in the "Discussion" (23 cases): "***We report*** a rare case of a CVC tip malpositioned in the right internal mammary artery (IMA)"; "***We describe*** the case of a 30-year-old man from the north of Morocco with no medical or surgical history and no family history of rectal disease"; "Here, ***we present*** two cases where difficult intubation was anticipated".

Contextual use of other verb tenses in MCRs

The **present continuous tense** describes a changing situation or an action that is happening near the time of reporting:

- "…we ***are reporting*** this case with the aim of drawing attention to this undocumented occurrence, which remains under investigation".
- "The injury we ***are dealing with*** seems to have been the result of a ricocheting bullet".
- "…the possibility that we ***are dealing with*** a Lynch 2 syndrome remains at the front of our minds".
- "…we ***are monitoring*** her every month at our out-patient clinic".
- Approximately 50% of tetanus cases in the USA occur after injuries, but intravenous drug use ***is becoming*** increasingly significant.

Contextual use of other verb tenses in MCRs

- The **present perfect continuous** is used in the "Introduction" section to refer to an action that began in the past and has gone on up to the present time:
- "Since March 2009, we ***have been using*** single-port laparoscopic cholecystectomies in selected patients with benign gallbladder diseases".
- "In our Institute we ***have been treating*** giant hydatid cysts of the lung for 15 years, but never more than 20 cm in diameter".
- Sometimes it is used in the "Acknowledgements" sections:
- We ***have been using*** laboratory facilities at the Institution for Strategic Studies and Scientific Research, and we give special thanks to Dr Pola Khanaqa for creating an excellent research environment.

Narrative style

- The direct manner and personal style of MCRs are vividly embodied in the wide use of the **first person plural personal pronoun** (e.g., *"we report", "we describe", "we found",* etc.) – 77 cases.
- The use of "we" emphasizes the fact of joint authorship: "sole authorship should rarely be undertaken, instead the support and critical appraisal of a number of colleagues, as well as clinical mentors, offers the most likely team to ensure a strong contribution to literature" (Aitken L.M., Marshall A.P., 2007).
- Patients are usually referred to as **third person pronouns**. This narrative strategy is aimed primarily at the protection of patients' personal information: "***He*** presented with a 1-year history of rectorrhagia and constipation (…) ***He*** was hospitalized in our surgical department when he defecated spontaneously the tumor mass. (…) At the end of radiotherapy, ***he*** had follow-up consultation every 3 months (…) After 1 year of surveillance, ***he*** has not presented any clinical symptoms and pelvic magnetic resonance imaging was normal".

Essential vocabulary for writing MCRs

Formality levels

(*Adapted from:* C.B. Norris. *Academic Writing in English*, 2014)

Avoid these	Choose among these
a bit	a little, slightly, somewhat
a couple	two, a pair (for people, "couple" implies man and woman)
a lot, a lot of, lots of	several, many, multiple
anyhow	in any case, in any event, nevertheless, nonetheless
anyway	although, thus, however
besides; too	also, in addition, likewise; furthermore, moreover
enough	sufficient
fix (verb)	arrange, manage, handle
give (verb)	supply, furnish, offer, provide, yield

Formality levels

Avoid these	Choose among these
gone; none	lacking, absent; missing
hard	difficult, demanding, laborious, time-consuming
let (v)	allow, permit, give permission for
little (= few)	few, insufficient, lacking, rare, scarce, sparse
look for (v)	try to find, seek (sought), search for
make	produce, construct, form, compose, build, create, originate, constitute
plenty of	abundant, ample (vs. sparse), numerous, frequent (occurring over time)
pretty; quite	somewhat, almost, moderately, not uncommon, not infrequent
quite X	very (a weak word), rather, considerably, noticeably, notably, markedly
so	therefore, thus, hence
start (v)	begin, initiate, undertake

Formality levels

Avoid these	Choose among these
take (v)	adopt (100%), adapt (with changes), transfer, possess
think X is	consider X to be, judge X to be, deem X to be
though	even though, although, notwithstanding
too	also, in addition, as well as, likewise
try (to)	attempt to / endeavor to
turn out (v)	prove/proven to be X (show by evidence; "It proved to be a wise choice."
way	means, approach, method, procedure, manner
work out (v)	solve, resolve, determine, devise, OR clarify, elucidate

ACADEMIC VOCABULARY: General explaining

- 1. ***In order to***

"In order to" can be used to introduce an explanation for the purpose of an argument.

- 2. ***In other words***

Use "in other words" when you want to express something in a different way (more simply), to make it easier to understand, or to emphasise or expand on a point.

- 3. ***To put it another way***

This phrase is another way of saying "in other words", and can be used in particularly complex points, when you feel that an alternative way of wording a problem may help the reader achieve a better understanding of its significance.

- 4. ***That is to say***

"That is" and "that is to say" can be used to add further detail to your explanation, or to be more precise.

- 5. ***To that end***

Use "to that end" or "to this end" in a similar way to "in order to" or "so".

Additional information to support a point

- 1. ***Moreover***

Employ "moreover" at the start of a sentence to add extra information in support of a point you're making.

- 2. ***Furthermore***

Usage: This is also generally used at the start of a sentence, to add extra information.

- 3. ***Likewise***

Use "likewise" when you want to talk about something that agrees with what you have just mentioned.

- 4. ***Similarly***

Use "similarly" in the same way as "likewise".

- 5. ***Another key point to remember***

Use the phrase "another key point to remember" or "another key fact to remember" to introduce additional facts without using the word "also".

- 6. ***Firstly, secondly, thirdly…***

This can be used to structure an argument, presenting facts clearly one after the other.

- 7. ***Not to mention/to say nothing of***

"Not to mention" and "to say nothing of" can be used to add extra information with an emphasis.

Words and phrases for demonstrating contrast

- 1. ***However***

Use "however" to introduce a point that disagrees with what you have just said.

- 2. ***On the other hand***

Usage of this phrase includes introducing a contrasting interpretation of the same piece of evidence, a different piece of evidence that suggests something else, or an opposing opinion.

- 3. ***Having said that***

Usage: Used in a similar manner to "on the other hand" or "but".

- 4. ***By contrast/in comparison***

Use "by contrast" or "in comparison" when you're comparing and contrasting pieces of evidence.

- 5. ***Then again***

Use this to cast doubt on an assertion.

- 6. ***Yet***

Use this when you want to introduce a contrasting idea.

Adding a proviso or acknowledging reservations

- 1. ***Despite this***

Use "despite this" or "in spite of this" when you want to outline a point that stands regardless of a shortfall in the evidence.

- 2. ***With this in mind***

Use this when you want your reader to consider a point in the knowledge of something else.

- 3. ***Provided that***

This means "on condition that". You can also say "providing that" or just "providing" to mean the same thing.

- 4. ***In view of/in light of***

These phrases are used when something has shed light on something else.

- 5. ***Nonetheless***

This is similar to "despite this".

- 6. ***Nevertheless***

This is the same as "nonetheless".

- 7. ***Notwithstanding***

This is another way of saying "nonetheless".

Signifying importance and summarizing

- 1. ***Significantly***

This can be used to introduce a point that is loaded with meaning that might not be immediately apparent.

- 2. ***Notably***

Can be used to mean "significantly" (as above), and it can also be used interchangeably with "in particular".

- 3. ***Importantly***

Use "importantly" interchangeably with "significantly".

- 4. ***In conclusion***

Typically used to introduce the concluding paragraph or sentence, summarising what you have discussed in a broad overview.

- 5. ***Above all***

Can be used to introduce a point that is loaded with meaning; the main takeaways from the writing.

- 6. ***Persuasive***

This is a useful word to use when summarising which argument you find most convincing.

- 7. ***Compelling***

Use in the same way as "persuasive" above.

- 8. ***All things considered***

This means "taking everything into account".

The use of Latin and latinized Greek in MCRs

(in: Lysanets Yu. et al. "The Use of Latin Terminology in Medical Case Reports: Quantitative, Structural and Thematic analysis". Journal of Medical Case Reports, 2018. doi: 10.1186/s13256-018-1562-x)

- We studied the prevalence of terms and terminological collocations from classical languages in the issues of *Journal of Medical Case Reports* over the period from February 2007 till August 2017.
- Our study demonstrated the long-standing predominance and viability of Latin and latinized Greek in modern MCRs.
- We developed structural and thematic typologies of Latin terms and expressions, and conducted a quantitative analysis that enabled us to observe the tendencies of using these lexical units in the genre of medical case report.

One-word nonassimilated Latin terms

(in: Lysanets Yu. et al. "The Use of Latin Terminology in Medical Case Reports: Quantitative, Structural and Thematic analysis". Journal of Medical Case Reports, 2018. doi: 10.1186/s13256-018-1562-x)

- Our structural typology focused on the major modeling patterns of Latin terminology in MCRs and comprises the following groups:
- 1. One-word terms, embracing the nonassimilated Latin lexis, such as *mane* (meaning "in the morning"), which is used in prescriptions (n=12); *circa* (meaning "approximately"), which is used for descriptive purposes (n=7).
- We detected 17 cases of using the noun *erratum* (meaning "error") for amending a published text.
- Furthermore, the one-word terms are represented by compound Latin lexis, such as *primigravida* ("a woman who is pregnant for the first time"; n = 30 cases) and *nullipara* ("a woman who has never given birth"; n = 2 cases).

The use of Latin terminology in MCRs

- The undeniable advantage of one-word Latin terms, as in the example of *mane, primigravida, nullipara*, is their conciseness, which is essential for MCRs as a genre.
- **At the same time, pluralizing Latin terms can sometimes be quite a challenge.**
- For instance, a common mistake occurs when deriving the plural form of the Latin word "*septum*". This lexical unit belongs to the 2nd declension of Latin nouns, neuter gender. Therefore, the correct plural form in Latin (and in English) is "*septa*".
- However, the plural form "septa" is quite often mistaken for a singular form, and consequently it is erroneously pluralized as "septae" (on the model of "vertebra" – "vertebrae"). As a result, a misspelling ("septae") occurs.
- In our research (2018), we found 20 papers in *JMCR* containing the incorrect plural form of this word, for example: "...surgical drainage of the hepatic abscess (that contained many ~~septae~~ ***septa***) was performed"; "Alveolar ~~septae~~ ***septa*** were inflamed, thickened and fibrotic", etc.

Latin Plural Endings in English Medical Vocabulary

- A similar error may occur with the word “dorsum” which also belongs to the 2nd declension of Latin nouns, neuter gender.
- We found 3 papers in *JMCR* with this misspelling (“dorsae”): “Her dermographism was improving but she had developed confluent erythema and slight hyperkeratosis between and over the ~~dorsae~~ ***dorsa*** of her fingers”, etc.
- Another challenging aspect of using Latin in MCRs is the subject-verb agreement in number. We detected this type of error in the words “bacterium” (singular) – “bacteria” (plural), and “labium” (singular) – “labia” (plural): “The next closest ~~bacteria~~ ***bacterium*** was Haemophilus parainfluenzae with a 97% similarity score”; “Right ~~labia~~ ***labium*** was asymmetrically enlarged” .

Two-word Latin phrases

- 2. **Two-word Latin phrases** preserve the original features of the Latin grammatical system. This group embraces the following subcategories:
- 2a. Preposition + noun in ablative case: ***in vitro*** (literally "in the glass," meaning "performed outside the normal biological context"; n = 192 cases); ***in situ*** ("on site"; n = 191 cases); ***in utero*** ("in the womb"; n = 44 cases), etc.
- 2b. Preposition + noun in accusative case: ***per rectum*** ("by way of the rectum"; n = 70 cases); ***post partum*** ("after birth"; n = 41 cases); ***per* os** ("by mouth"; n = 30 cases); ***in toto*** ("in general"; n = 6 cases); ***ante partum*** ("before birth"; n = 1 case); ***ad hoc*** ("for this"; n = 1 case); ***inter alia*** ("among other things"; n = 1 case); and ***post factum*** ("after the event"; n = 1 case).

Two-word Latin phrases (continued)

- 2c. Preposition + adjective in ablative case: ***in vivo*** (literally "within 2the living," meaning tested in the living organism; n = 71 cases); ***a priori*** (literally "from the earlier," meaning when justification is independent of experience; n = 2 cases); ***ex novo*** ("from the beginning"; n = 2 cases), etc.
- 2d. Noun + adjective constructions: ***foramen magnum*** ("great foramen"; n = 10 publications); ***cor pulmonale*** ("pulmonary heart"; n = 10 cases); ***oculus dexter*** ("the right eye"; n = 4 cases); ***oculus sinister*** ("the left eye"; n = 4 publications); ***os sacrum*** ("sacral bone"; n = 2 publications); ***os ilium*** ("iliac bone"; n = 2 cases) and others.
- 2e. Other types of two-word phrases are represented by miscellaneous constructions, preposition + pronoun: ***per se*** ("by itself"; n = 27 cases; and adverbial constructions: ***sensu stricto*** ("in the narrow sense"; n = 2 cases); ***sensu lato*** ("in the broad sense"; n = 1 case); verb + adverb: ***vide supra*** ("see above"; n = 1 MCR).

Three-word Latin phrases

- 3. The group of **three-word phrases** is also remarkable for preserving the original features of Latin grammar. Hence, it is essential for medical professionals to be aware of correct forms of nominative plurals, genitive singular and plural, Latin adjectives, and so forth in order to avoid misspelling in medical writing.
- It comprises the following subcategories:
- 3a. Noun + adjective + adjective: ***musculus rectus abdominis*** ("abdominal rectus muscle"), ***os tibiale externum*** ("external tibial bone"), ***ductus hepaticus dexter*** ("right hepatic duct"), etc.
- 3b. Noun + noun + adjective: ***abductor digiti minimi*** ("little finger muscle"; n = 6 cases); ***levator palpebrae superioris*** ("the muscle that elevates the upper eyelid"; n = 3 cases); and ***locus resistentiae minoris*** ("an area of little resistance"; n = 1 case), etc.

Three-word Latin phrases (continued)

- 3c. Noun + adjective + noun: ***musculus orbicularis oculi*** ("orbicular muscle of eye"), ***musculus latissimus dorsi*** ("broadest muscle of back"), etc.
- 3d. Noun + preposition + noun: ***carcinoma in situ*** ("a group of abnormal cells, located in the place where they first formed"; n = 26 cases) and ***fissula ante fenestram*** ("a small connective tissue-filled cleft, located anterior to the oval window"; n = 1 publication).
- 3e. Preposition + preposition + noun: ***ex post facto*** ("from a thing done afterward"; n = 1 case).

Compound English-Latin word phrases

- 4. The subgroup of compound English-Latin word phrases (we define them as the ***hybrid terms***) contains both assimilated and nonassimilated lexical units: ***inferior vena cava*** (n = 122 cases), ***latissimus dorsi muscle*** (n = 6), ***latissimus dorsi flap*** (n = 6), ***carcinoma ex pleomorphic adenoma*** (n = 5), ***dorsum of the tongue*** (n = 5), ***the abductor hallucis muscle*** (n = 4), ***quadriceps femoris muscle*** (n = 3), ***levator palpebrae muscle*** (n = 3), ***orbicularis oris muscle*** (n = 2), ***the rectus femoris muscle*** (n = 2), ***ex vacuo dilatation*** (n = 1), and ***quadratus femoris muscle*** (n = 1).

Latin abbreviations

- 5. The group of abbreviations is represented by lexical units such as ***i.e.*** (***id est***, meaning “that is”; n = 85 cases); ***e.g***. (***exempli gratia***, meaning “for example”; n = 81 cases); ***etc***. (***et cetera***, meaning “and so on”; n = 18 cases); ***q.i.d.*** (quarter in die, meaning “four times per day” as used in prescriptions; n = 12); ***b.i.d.*** (bis in die, meaning “twice per day”; n = 11); ***t.i.d.*** (ter in die, meaning “three times per day”; n = 8); ***PRN*** (pro re nata, meaning “as and when necessary”; n = 1); ***qAM*** (quaque die ante meridiem, meaning “every morning”; n = 1); ***qHS*** (quaque hora somni, meaning “every bedtime”; n = 1); and ***qPM*** (quaque die post meridiem, meaning “every evening”; n = 1).

Latin abbreviations

- Latin terms in the names of indications for treatment (such as *PRN* [pro re nata], *t.i.d.* [ter in die], and so forth) are widely used in the modern MCRs.
- This is due to the fact that these terms are transnational, stable, and internationally understood.
- Furthermore, such terms are effective and concise tools of conveying the author's message as quickly as possible.

Latin abbreviations in MCRs

Abbreviation	Latin	Meaning
b.i.d.	Bis in die	Twice daily
t.i.d.	Ter in die	Three times daily
q.i.d.	Quarter in die	Four times daily
hs (or qhs)	(Quaque) hora somni	At bedtime (each night)
p.c.	Post cibum	After meals
prn.	Pro re nata	As circumstances may require, as needed
ad. lib.	Ad libitum	As you desire or need
p.o.	Per os	By mouth (orally)
p.r.	Per rectum	Rectally (suppository)
a.c.	Ante cibum	Before meals
o.d., o.s., o.u.	Oculus dexter; sinister; uterque	Right eye; left eye; both eyes
q.d.	Quaque die	Daily
i.v.	Intravenously	Into the vein
s.q.	Subcutaneously	Beneath the layers of the skin
q.h.	Quaque hora	Hourly
c.c.	Cum cibos	With food
gtt (gtts)	Guttae	Drop(s)
stat.	Statim!	Immediately
dieb. alt.	Diebus alternis	Every other day
ung.	Unguentum	Ointment

Symbols and abbreviations used in MCRs

Symbol	Meaning	Abbreviation	Meaning
o	not present or no abnormality	**PMHx**	past medical history
+/-	uncertain/equivocal	**FHx**	family history
+	present or noted	**PC**	present complaint
++	present significantly	**CC**	chief complaint
+++	much/many or present in excess	**c/o**	complains of
↑/↓	up, increasing / down, decreasing	**DOB**	date of birth
#	fracture	**h/o**	history of
Δ	diagnosis	**nil.**	nothing, zero
diff. Δ or ΔΔ	differential diagnosis	**Rx**	prescription, treatment
1/7	1 day	**c.**	caution
2/52	2 weeks	**w.**	with
3/12	3 months	**w/o**	without
T-14	term less 2 weeks	**d/c**	discontinue or discharge
T+7	term plus 1 week	**d/t**	due to

- As a next step, we organized the collected material into thematic groups and determined the frequency of their use in *JMCR*. Hence, the thematic typology comprises the groups of Latin terms that signify the following:

1. **Medical phenomena and processes**:

   a. Anatomical descriptions (for example, phrases with terms such as *musculus, os, levator, abductor,* etc.)

   b. Physiological conditions (for example, *virgo intacta, primigravida, nullipara, ante partum, postpartum*, etc.)

   c. Methods of studies and experiments (for example, *in vivo, in vitro, in situ*, etc.)

   d. Indications to treatment and routes of administering medications (for example, *mane, ter in die, quarter in die, per os*, etc.)

   e. Pathological conditions (for example, *cor pulmonale, carcinoma ex pleomorphic adenoma, placenta previa percreta*, etc.).

2. **Academic language** that maintains the coherence and cohesion of the discourse (for example, *inter alia, in toto*, and so forth).

Thematic groups	Anatomical descriptions	Physiological conditions	Methods of studies and experiments	Indications to treatment	Pathological conditions	Academic language
Structure						
One-word terms	N/A[a]	32	–	4	N/A*	21
Two-word phrases	64	97	464	100	33	52
Three-word phrases	24	–	–	–	27	1
Compound English-Latin word phrases	151	6	–	–	5	–
Abbreviations	–	–	–	35	–	184

[a] We did not conduct quantitative analysis of one-word Latin terms denoting anatomical descriptions and pathological conditions because of their predominance in the medical discourse and because of their high level of assimilation into the English language. Instead, we deliberately focused on the multiple-word terms that clearly preserve the Latin lexicogrammatical features and therefore are the demonstrative examples of using the classical language in MCRs nowadays
N/A Not available, *MCRs* Medical case reports

- The research revealed that Latin terminology is most frequently used to refer to **methods of studies and experiments** (**464** two-word phrases). Next are the categories of **anatomical descriptions** (**236**) and **academic language** (**258**), followed by **indications to treatment** (**139** units). Latin terminology, used for denoting **physiological conditions**, is represented by **135** units, whereas the group of **pathological conditions** is the least "latinized" category (**65** cases).

Conclusions:

- In modern MCRs, there is a strong tendency of using terms and terminological collocations from classical languages, which requires particular attention in order to avoid misspelling in medical writing.
- The adequate use of terms from classical languages in MCRs is an essential prerequisite of effective sharing one's clinical findings with fellow researchers from all over the world.
- Using Latin promotes the conciseness of MCRs because the lexis of classical languages is internationally adopted and understood. For instance, two-word terms, such as *in vitro, ex vitro, in vivo, ex vivo, in situ*, as well as abbreviations enable the transfer of the maximum amount of necessary information using the minimum linguistic tools.
- Latin expressions contribute to the coherence of narratives in MCRs.
- Latin terms constitute an ever-present and timeless lexical layer of medical terminology, and their appropriate use adds to the overall scholarly value and educational intentions of MCRs.
- The use of "hybrid" (English-Latin) word phrases in MCRs indicates that classical languages and English in modern medical terminology reside in a state of natural symbiosis.

Key takeaways:

- MCRs are characterized by traditional lexical structures and grammar rules, which must be respected.
- Presenting the research results without consideration of academic norms, grammar and lexical features of the English language can lead to mistakes and misunderstanding, and result in a written work of poor quality.
- Thus, it is crucial for medical professionals to be aware of peculiarities of academic writing in English in order to be understood and acknowledged, and ultimately to succeed in the modern English-speaking world.

Thank you for your attention!