

Ethical aspects in medical publishing in Belgium

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Abstract

Medical publishing has become a pivotal aspect of all stages of career development in medicine in Belgium. Publication pressure is therefore present from the stage of the medical student to the level of the head of an academic medical service. This pressure represents a real danger to commit scientific misconduct, ranging from minor missteps to severe fraud. Recent surveys have shown that scientific misconduct and publication fraud represent an important problem in medical publishing, more than in other scientific fields, also in Belgium. Several factors may explain the increased risk of scientific misconduct in medical publishing. Recent national and international initiatives have emerged in order to better understand the problem of scientific misconduct and to optimize ethics in medical publishing. They aim to increase integrity and transparency at all levels of medical research and publishing, starting at the beginning of a career in medical school. The current review describes the ethical difficulties in medical publishing in Belgium, and offers possible solutions. (*Acta Gastroenterol. belg.*, 2018, 81, 45-48).

Key words : Ethics, medical publishing, scientific misconduct, research fraud, review.

Introduction

A career in medicine is built upon the combination of personal expectations, professional qualifications and the right opportunities. Personal expectations and the right opportunities are based on subjective will and luck and thus difficult to measure. On the other hand, professional qualifications depend on study results, clinical expertise and scientific development. And since the numbers tell the tale, professional qualifications are quantified to create rankings; ranking of medical students, ranking to become a trainee in specialized medicine, ranking to apply for a position, ranking for professional promotion, ranking to obtain grants for scientific research, ranking of hospitals, ranking of universities,... (1,2).

Medical publications represent a cornerstone in the ranking method, at each stage of the highly competitive world of career development in medicine. Therefore, to some extent medical publications are no longer serving the development of medical knowledge and patient care, they rather serve the personal and professional development of medical students and doctors. This represents an important conflict of interest / self-interest (3). It is clear that this increasing scientific productivity relates to publication pressure and scientific misconduct (4,5).

Moreover, pharmaceutical and medical device companies also need medical publications with positive

evaluations of their products in their quest to bring them on the market and to obtain reimbursement, increasing the risk of commercial bias in industry-financed journal literature (3). And finally, journal editors need medical publications because they provide financial income. Some important journals have a profit margin of up to 40%. However, the competition in the publishing industry is tough since the number of scientific journals increases with 3,5% per year, reaching more than 25 400 scientific journals in 2010 (6). Some of the more recent journals actively solicit for manuscripts in order to complete the upcoming issue, rendering criteria for acceptance less stringent (7).

Is there a problem in medical publishing ?

Flagrant cases of medical fraud are news items from time to time, leading to general indignation (8,9). However, based on the increasing number of retracted medical publications each year, these cases only represent the tip of the iceberg of scientific misconduct and unethical publication (10). A PubMed search on 10 November 2016 with the term 'retraction of publication' revealed only 33 hits for the year 2000, 98 in 2005, 328 in 2010 with a continuous increase up to 731 hits in 2015, an total increase of over 2000% in 15 years. This growing number of retractions represents the problem of unethical publication and scientific misconduct, but it also reflects a growing emphasis on scientific integrity (11). According to the USA Office of Research Integrity (<https://ori.hhs.gov/>) and the European Code of Conduct of Research Integrity (12) severe scientific misconduct stands for plagiarism, falsification and fabrication of research results (5). Table 1 lists other forms of scientific misconduct which are more frequent but only considered mild in case of incorrect or ghost authorship, double publications or split publications of the same research results, as illustrated by the concept of least publishable unit (LPU) (13). Some forms are considered of moderate severity in case of lack of approval by the local ethical

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Table 1. — Different types of scientific misconduct

1. Minor scientific misconduct	
a.	Incorrect (ghost) authorship
b.	Denying other contributors as potential authors
c.	Double and split publications of the same research results
2. Moderate scientific misconduct	
d.	Missing approval from ethical committee
e.	Missing patient's informed consent
f.	Animal care violation
g.	Omission of results to fit the research hypothesis
h.	Manipulation of results to please sponsor
i.	Subjective reviewing process
j.	Improper dealing with scientific misconduct
3. Severe scientific misconduct	
k.	Plagiarism of research ideas, results and publications
l.	Falsification of research results
m.	Fabrication of research results

committee, lack of informed consent, omission of results that do not fit the research hypothesis and manipulation of results under pressure of a financial sponsor. Severe fraud is less frequent but represents a real problem in medical publishing, more than in other scientific disciplines (14).

Recently, a new form of scientific misconduct was encountered. Many journals offer the submitting author to suggest possible reviewers for their manuscript. The BioMed Central publisher found out that some authors fabricated ghost reviewer profiles in order to be able to review their own or their colleagues' manuscript (personal communication 2015).

Do we have a problem in Belgium ?

Also in Belgium, the problem of unethical medical publishing exists. An anonymous survey conducted in 2012 among 315 medical scientists in the 5 universities in Flanders revealed that 15% of the respondents admitted to have falsified, fabricated, plagiarized or manipulated research data in the last 3 years, which is considered severe fraud (15). Up to 70% assigned incorrect authorship to people that did not contribute to the study, a milder form of unethical publication. And 52% stated that publication pressure is an important problem and detrimental for medical science.

The problem of scientific misconduct and unethical publishing in the Flemish survey seems bigger than in previous studies. Meta-analyses of clinical studies on scientific misconduct revealed severe fraud in less than 2% and other types of unethical publishing up to 33% (16,17,18). These meta-analyses consisted of both medical research and other scientific disciplines. It is difficult to draw correct comparative conclusions between the Flemish survey and the international meta-analyses, but the Flemish study underscores the importance of the problem of unethical medical publishing in Belgium. And there is no reason to assume that the situation is different in the French speaking part of Belgium.

Little information regarding unethical medical publishing in Belgium is currently available. However, the scarce available data warrant further study and action. The Flemish study revealed that publication pressure in medicine is considered more of a problem than in The Netherlands (15). And higher publication pressure increases the risk of unethical publishing and scientific misconduct (15). This results in a higher prevalence of self-reported scientific misconduct and unethical publishing in Belgium as compared to other countries (16). Although systematic data on unethical medical publishing in Belgium are lacking, it is clear that the problem is apparent, calling for concerted action.

How to deal and to avoid unethical medical publishing ?

In order to solve a problem, the problem should be well defined. No systematic data on scientific misconduct and unethical publishing in Belgium are available. Each university in Belgium now has a Commission of Scientific Integrity to give advice on intern cases of scientific misconduct based on the Code of Ethics of Scientific Research in Belgium (19). In Flanders there is an overarching commission (Vlaamse Commissie voor Wetenschappelijke Integriteit VCWI) active since 2013 to provide a second opinion whenever needed by a local commission of scientific integrity at the level of a university or other scientific organisations. In 2014 and 2015, only 2 cases of scientific misconduct were sent each year to the VCWI for a second opinion (<http://www.kvab.be/vcwi/>).

Ethics in scientific and medical research can be taught, and should be emphasized throughout the entire professional career in medicine. It has been shown that young scientists (medical students and PhD students) are prone to commit scientific misconduct, especially when they are under time pressure and lacking a mentor closely involved in the research project (20,21). Therefore, the importance of ethical aspects of scientific research and medical publishing should be included in the medicine curriculum and in postgraduate teaching programmes. And also mentors should continuously be trained and updated on the importance of ethical research and publishing, to help spreading the message. Instead of retracting unethical publications at the end of the line and taking difficult measures against researchers committing scientific misconduct, more attempts should be made to prevent scientific misconduct at the very early beginning of medical research. Methods to prevent scientific misconduct are listed in Table 2.

Medical editors and publishers should be aware of the risk of unethical publishing. The journal's reputation will be damaged, its name being correlated with scientific misconduct. But on a much larger scale, scientific misconduct pushes medical progression a step back and potentially puts patients' life in danger. That is why retraction of fraudulent manuscripts has come into focus of editors of medical journals. It has been shown

Table 2. — **10 possible solutions to avoid or combat scientific misconduct in medical publishing**

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| 1. | Include ethics in research and publication in medicine curriculum at university |
| 2. | Train and update research mentors in ethics in medical research |
| 3. | Commission of Scientific Integrity in scientific organisations |
| 4. | Registration of clinical trials in a public trials registry |
| 5. | Open access to research databases |
| 6. | Publishers should subscribe to COPE (Committee on Publication Ethics) |
| 7. | Transparency of reviewing process of submitted medical manuscripts |
| 8. | Disclosure of conflicts of interest of both authors and reviewers |
| 9. | Actively search for scientific misconduct and retract fraudulent publications |
| 10. | Appropriate measures against researchers committing scientific misconduct |

that efforts are done mainly by the more important medical journals, since their publications have a bigger impact on clinical practice on the one hand, and they have a bigger reputation to defend on the other hand (10,17). Therefore, they actively search for unethical publications. Medical journals with a lesser impact factor seem to pay less attention to scientific misconduct. The Committee on Publication Ethics (COPE) provides advice to editors and publishers on publication ethics and scientific misconduct (<http://publicationethics.org/>). Currently over 2800 medical journals are COPE member subscribing the Code of Conduct for Journal Editors. The growing importance of COPE illustrates the increasing interest in all aspects of publication ethics, and how to deal with scientific misconduct. Currently, *Acta Gastro-Enterologica Belgica* is not a member of COPE, but subscribes its code.

Also the reviewing process of submitted manuscripts is prone to misconduct (22). Manuscripts are peer reviewed by colleagues who may have conflicts of interest. The reviewer may be less strict or too strict in commenting a manuscript depending on the relation with the author or on the research topic. Therefore, the reviewer has a major impact on either favouring or opposing to a manuscript acceptance, and the reviewing process should be conducted with the necessary ethical integrity. Measures to improve the ethical aspects of the review of manuscript include: yearly update of reviewers' conflicts of interest, blinding the authors' names to the reviewers, but unblinding of the reviewers' names, making the reviewers' comments publically available together with the publication of the manuscript, providing the reviewer with quality feedback after each reviewing process. These measures improve the transparency and integrity of the reviewing process and should therefore be encouraged (23).

The role of pharmaceutical and medical device companies in publication ethics is not to be underestimated. They generally provide important financial sponsoring of clinical trials testing their drugs or devices. This implicates an important conflict of interest for all authors of the publication. Results of the tested drug or device need to be positive, in order to bring it on the market

to get financial return on investment. Because of this important risk of conflict of interest, good publication practice guidelines for company-sponsored medical research have been developed (24). Continuous fostering of competence in medicine development, ethical aspects included, is also provided by the International Federation of Associations of Pharmaceutical Physicians and Pharmaceutical Medicine (IFAPP) (25).

Conclusions and prospects of future research

Medical publishing aims to spread the progression of medical science and knowledge, in view of the continuous improvement of patient care and therapy. However, medical publishing also serves the professional career of the author(s), reflecting an important conflict of self-interest. This may even lead to scientific misconduct and unethical publishing in all fields of research, as recent studies have shown. Unfortunately, the problem of scientific misconduct is more prevalent in medical sciences as compared to other scientific fields, illustrating the growing problem of "publish or perish" in our medical profession, and the potential danger of putting patients' life at risk. This problem also exists in Belgium, although only scarce data are currently available. Therefore, it is mandatory to incorporate lessons in research ethics in the medicine curriculum at university since the importance of research integrity needs to be continuously emphasized throughout all stages of a professional career in medicine. However, also other players in medical publishing, like pharmaceutical and medical device companies, should be aware of the growing importance of ethics in research and publishing. And finally, the role of medical editors and publishers should be underscored to watch over the quality of ethical principals in medical publishing. To do so, the reviewing process of submitted manuscripts should be as open and transparent as possible, and may need to be reconsidered in order to combat unethical medical publishing.

Author contributions

TM wrote the manuscript and presented part of this review at the annual meeting (Les Actualités en Gastro-

entérologie) of the Société Royale Belge de Gastro-entérologie on October 22, 2016.

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