

Case reports and their importance in Medical Literature

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Abstract

It is important to appreciate how case reports have paved the way for modern research. They are still largely considered the first line of evidence. Indeed global endemics such as HIV and Zika Virus have been traced back to initial case reports. Strictly speaking; case reports are anecdotes — a factual story telling about nature's own experiment. Case reports can be characterized by two huge advantages, their ability to present novel, rare cases in a manner that can lead to the expansion in research of such cases and their use in generating new, innovative hypothesis that can be used to direct further research. The aim of this article is to identify the place and purpose of case reports in the current research setting with a focus on highlighting its merits and limitation amongst other things.

Keywords: Case reports, medical literature, importance.

Introduction

It is important to define a case report for the sake of clarity, a good attempt at a definition would be; "Case reports are the written form of a physician's experience shared to enhance knowledge, raise questions and to pave the path for further research on the topic. They are often used to report new diseases, treatment or complications."¹ Case reports are the earliest forms of sharing medical experience dating as far as 1600 BC.² They have throughout the ages been the bread and butter of medical research before the shift towards modern medicine.³ Since then they have been scrutinized in regards to how relevant they are towards in the current scenario of evidence based medicine.⁴

It is important to appreciate how case reports have paved the way for modern research. They are still largely considered the first line of evidence. Indeed global endemics such as HIV and Zika Virus have been traced back to initial case reports.^{5,6} Case reports also reported the concerns of thalidomide use by pregnant women and congenital defects.⁷ Along with that their contribution towards discovering rare diseases and disorders cannot be emphasized enough. However in this day and date, diseases which have a greater burden and impact on the

health budget are, understandably given more priority.

This leads to the aim of this article which is to identify the place and purpose of case reports in the current research setting with a focus on highlighting its merits and limitation amongst other things. It is imperative to note that case reports consist of a minimal percentage of total publications in most journals.^{8,9}

Methods

A thorough study of numerous recent researches published worldwide was done. These researches had all been published in the indexed journals and were searched in Pubmed. Also several articles were searched which highlighted the importance of case reports in several different fields of medicine and in different regions of the world. Some researches that analysed the number of different types of articles that have been published in specific journals in recent years were also studied. Therefore about sixty articles were screened and from that about thirty studies have been included in this review. The keywords that yielded the best and most relevant articles were "case reports AND medical journals". The filters were also applied. All the articles that were published within the last 10 years were preferred. Abstracts and full texts both were included in the search. No filter was applied for article types as we had to analyze all the work that had been done previously which highlighted the importance of any specific article type over the others.

Discussion

Structure of Case Reports

The format of a case report differs from other literature in a number of ways. For one thing their format varies from journal to journal; this is discussed further below. Secondly the bulk of a case report is focused on the case presentation, treatment or history depending on the focus. Indeed it is not unusual for discussion to be limited depending on relevant articles being found. Ideally case reports should be to the point and focused on the case with a limited or no introduction followed by details of the case and then the discussion. Images and other media may be added as well. Abstracts may or may not be added.^{1,10,11}

Merits

Case reports can be characterized by two huge advantages, their ability to present novel, rare cases in a manner that can

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lead to the expansion in research of such cases. The other important advantage is their use in generating new, innovative hypothesis that can be used to direct further research related to such cases in order to facilitate better understanding.¹² Another article also seems to be in synch regarding their opinion about the benefits of case reports.¹³ Other benefits include low cost compared to a clinical trial, flexibility and their role in an educational setting.

Impact factor

Case reports have the lowest citation impact over all forms of medical literature, a study found that less than 1% of case reports were cited more than 10 times within 2 years of being published.¹⁴ Strictly speaking; case reports are anecdotes — a factual story telling about nature's own experiment. This understandably puts it at the bottom and indeed thousands of case reports have had little to no relevance.¹⁵ However it is important to know that individual case reports have managed to shake the medical field in many ways. A case report to highlight the above statement; one in which an individual case report identified the hepatotoxicity of telithromycin — an FDA approved drug — and underpinned poor drug testing practices. This led to an FDA investigation into the matter along with charges of fraud.¹⁶ Another example in which a single case report had immeasurable impact was one which identified the risk of ingestion of cough suppressing vapour patches. This led to a recall of such products and a discontinuation of its sale.¹⁵

Importance

The medical field is heavily evidence based, this means that in addition to being a physician, doctors are encouraged to be students, teachers and researchers. The latter can be daunting especially for undergraduate students and also for the recently graduated. Case reports can help acclimatize budding doctors to medical research, and a successful publication can be a great learning experience.¹⁷

Significance Related to Specialty

Medicine in general has boundaries which are constantly being pushed. Case reports are generally the first ones to suggest such a change. They may identify deficiency in current treatments, aid in diagnosis and refresh diagnostic criteria along with giving the joy of reading a unique case. Their value is also highlighted particularly in fields of toxicology which is not well defined by the big guns of evidence based medicine such as clinical trials and cohorts, instead they rely significantly on evidence provided by case reports.¹⁵ Compared to other articles, this also broods true for other fields such as dermatology and neurology which benefit a lot from salient, unique features from other case reports in order to aid in diagnosis.^{18,19} Case reports of

Freud are still considered relevant and they helped pioneer psychiatry from its infancy to its current solid state.²⁴

Standardization of a Case Report

One of the reasons which could explain the love-hate relationship of publishers towards case reports is the variation of the format. This is attributed to guidelines not sufficiently established by numerous journals,^{20,23} as well as a lack of internationally recognized and approved guidelines. Recently this has been addressed by the introduction of CARE guidelines which seeks to bring all published case reports to be of a similar wavelength.²⁴ Such practices in the long term may lead to a survival and evolution of case reports from their primordial anecdotal state to a high-impact, decision-modifying source of information. An observational study can be done to identify the number of journals using the CARE guidelines.

Citation

Take a medical journal, any medical journal, and ask the editor how they would evaluate said journal. The answer is through the percentage of articles cited.²⁵ There is competition between articles and the most popular way to compare is using the IMPACT FACTOR (IF). It is important to know that IF only measures average number of citations as a fraction of total number of citable articles. This leads to a disparity in the famed quality versus quantity debate as impact factor does not necessarily measure the quality of an article but as a whole gives an idea of the quality of a journal.²⁶ Interestingly as case reports have low impact factors and consequently low citation rates, some journals encourage converting an initial case report submission to a more citable form of literature such as Letters to Editor.²⁷ This could lead to the distortion of potential quality case reports done by journals, in order to boost their IF. An attempt at explaining the above discussion, 3 case reports were found to be on the top 50 most read literature, however not a single one made it to the top 50 most cited literature.²⁸

Is there a Need for a Case Report Database?

Case reports are a significant part in the ocean of medical evidence. They may benefit from being stored in one place, with a relevant search engine. This may help in diagnosing rare presentations or in the treatment of rare diseases. It maybe of paramount importance for patients in critical care. This idea is not new; a website casedatabases.com was launched in 2012 before being shut down a year and a half later. It had 30,081 cases at one point and was considered a useful resource.^{29,30}

A way to Improve on the Current Case Study Pattern

Seeing is believing in some norms and this is no different

in the ever evolving field of medicine. This is true as discussed above for heavily visual fields of dermatology and radiology.³¹ This has led to the further refining of a case report by fortifying it with images and other visual aids. One journal has proposed to replace case reports with a relevant image, a 300 word essay and 3 literature references. It will be interesting to note how many authors follow this pattern of summarizing an already summarized report of a case.

Case reports have specific benefits which are not covered by other research methods. The issues lie in them being exploited by authors seeking to get published as even common cases can be published if presented in a certain manner. In the ever evolving platform of medicine it is paramount that certain changes are done to allow case reports to thrive. Special focus must be done on ensuring that all case reports are submitted in a similar format as well as that certain standards are met when a case report is submitted.

Limitations

No relevant research was found related to the authors' local setting.

Further Research

As mentioned above there is potential for observational studies done regarding CARE guidelines.

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