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Are Case Reports Valuable ? - Exploring their Role in Evidence Based Medicine and Patient Care

The Role of Case Reports in EBM

Abstract

Case reports, often overlooked in evidence-based medicine (EBM), play a pivotal role in healthcare research. They provide unique insights into rare conditions, novel treatments, and adverse effects, serving as valuable educational tools and generating new hypothesis. Despite their limitations in generalizability, case reports contribute significantly to evidence-based practice by offering detailed clinical information and fostering critical thinking among healthcare professionals. By acknowledging their limitations and adhering to reporting guidelines, case reports can contribute significantly to medical knowledge and patient care within the evolving landscape of EBM. This editorial explores the intrinsic value of case reports in EBM and patient care.

Key Words: Case Reports; Evidence Based Medicine; Editorial; Clinical Cases; Healthcare Research

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Core Tip: Case reports are indispensable in evidence-based medicine, offering crucial insights into rare cases and innovative treatments. While they are not as robust as randomized controlled trials or observational studies, case reports provide essential

information that can guide clinical decision-making and stimulate further research. Embracing the significance of case reports can enrich medical education and improve patient outcomes.

INTRODUCTION

Case reports have historically played a vital role in medical research, with examples like Louis Pasteur's work on the rabies vaccine and Sigmund Freud's studies on hysteria [1]. In present scenario, case reports also play a crucial role in evidence-based medicine and patient care by providing valuable insights into novel aspects of diseases, therapies, and adverse effects of treatments [2]. Despite being placed low on the evidence hierarchy, case reports are essential for signifying novel occurrences, generating hypotheses, and serving as the first-line evidence to test statistical methods [2]. They permit the discovery of new diseases, unexpected clinical scenarios & pathophysiology, contributing to medical education and the study of rare conditions that may not be feasible to study in large-scale trials [3]. Additionally, case reports can provide a narrative that complements quantitative data, offering a more holistic view of patient care and outcomes [4].

Case reports have traditionally been a cornerstone of medical literature, providing valuable insights into rare conditions, unusual presentations, and treatment outcomes. However, with the rise of evidence-based medicine (EBM), there has been a debate on the relevance and role of case reports in modern medical practice. Proponents of EBM argue that case reports, due to their anecdotal nature and limited generalizability, are of lower quality evidence compared to systematic reviews and randomized controlled trials [5]. The emphasis on rigorous research methodologies and systematic reviews in EBM has led some to view case reports as outdated and potentially misleading [6].

Despite these criticisms, some scholars argue that case reports still hold value in the era of EBM. They suggest that while EBM emphasizes quantitative analysis and systematic reviews, there are aspects of clinical practice that resist such quantification, such as tacit knowledge and humanistic considerations [7].

Furthermore, case reports continue to be published in reputable medical journals, indicating ongoing interest and relevance in the medical community [3,4]. They offer a platform for sharing unique clinical experiences, innovative treatments, and unexpected complications that can contribute to medical knowledge and patient care [4]. While EBM remains a critical foundation for clinical decision-making, the integration of case reports alongside systematic reviews and clinical trials can enrich the evidence base and provide a more comprehensive understanding of complex medical scenarios [8].

IMPORTANCE OF CASE REPORTS

As a physician point of view, importance of case reports include:

Evidence Generation: Well-written case reports contribute to evidence generation and clinical practice by offering valuable information to clinicians when other evidence is lacking [9].

Investigating New Hypotheses: Case reports can stimulate further investigations, leading to the discovery of new diseases, therapeutic approaches, or indications for existing treatments [8,9].

Early Detection of Emerging Diseases: In the early stages of a new or emerging disease, case reports are often the first source of information. They can help healthcare professionals recognize patterns, symptoms, and potential treatment strategies before large-scale studies are conducted [9,10]. For example, Kaposi's Sarcoma was published as a case series, stating that all the cases had in common homosexual practices, suggesting possible sexual transmission of an unknown infection which turned out to be as the first report of HIV-AIDS [1,11]. Similarly, single cases of Influenza Virus, Ebola Virus, and SARS-CoV virus were initially reported, which eventually escalated into global outbreaks [1,12]

Rare or Unusual Cases: Case reports are particularly valuable when dealing with rare or unusual medical conditions. Since RCTs often focus on common diseases, case reports can shed light on atypical presentations, unusual complications, or rare side effects of treatments [4,6]. For instance, several genetic conditions like neurofibromatosis type 1,

trisomy 18, and Wolf-Hirschhorn syndrome, were first identified and published as single case report [1,13].

Educational Value: Case reports are beneficial tools in graduate medical education, helping students acquire clinical competencies and apply evidence-based thinking in practice-based learning [10,14].

LIMITATIONS OF CASE REPORTS

Small Sample Size: Due to their nature, case reports have a small sample size, limiting their ability to infer causality or calculate incidence or prevalence [4,15].

Generalizability Concerns: Case reports lack generalizability and may not be representative of broader patient populations or clinical practices [4,16].

Retrospective Design: Retrospective design may lead to missing relevant data not documented in medical records, affecting the completeness of the report [4].

EDUCATIONAL VALUE AND FUTURE PERSPECTIVES

Skill Development: Writing case reports can enhance critical thinking, observational skills, medical writing abilities, and hypothesis generation for young doctors and medical students [14,17].

Patient-Centered Care: Case reports contribute to patient-centered care by highlighting unique cases, rare manifestations of diseases, and adverse effects of treatments [14,17].

Professional Development: Engaging in case reporting can provide valuable experience with the editorial process, motivate scholarly views on clinical work, and improve understanding of patient-centered care [14,17].

DISCUSSION

Case reports serve as a platform for training medical students, residents, and fellows in scientific writing and critical thinking [17]. They enhance awareness of rare disorders, clarify new aspects of disease etiology, and describe treatment responses, contributing to better-informed healthcare professionals. By documenting new or innovative treatments,

case reports can stimulate further investigations and the discovery of novel therapeutic approaches [14]. They provide a starting point for exploring potential interventions and outcomes. Case reports offer a structured approach to case-based learning in healthcare education. They facilitate the comparison of clinical scenarios, aiding in the evaluation, diagnosis, treatment, and prognosis of diseases [14,17].

While case reports may not provide generalizable results like larger studies, they offer detailed qualitative and quantitative clinical information on individual patients that can complement evidence from group studies [18]. This supplemental data can contribute to a more comprehensive understanding of disease management. Case reports help in sharing information about rare disorders that may not be investigated through controlled clinical trials due to their low incidence. They also play a crucial role in drug safety surveillance by documenting adverse effects promptly [18,19].

A dedicated issue to case reports would serve as a platform to share valuable clinical experiences [9]. This would not only facilitate the identification of rare pathologies and novel diseases but also shed light on atypical presentations of common ailments. Even seemingly unique or outlier cases can hold significant value for researchers and clinicians, potentially uncovering previously unrecognized drug interactions or subtle disease manifestations.

CONCLUSION

In conclusion, case reports still hold a valuable role in evidence-based medicine, as they continue to offer valuable insights into rare conditions, treatment outcomes, and unexpected effects. Case reports play a crucial role in medical education, hypothesis generation, and contributing to the understanding of complex medical scenarios. While systematic reviews and randomized controlled trials are prioritized in evidence hierarchy, case reports provide a narrative perspective that complements quantitative data, enriching the evidence base and enhancing patient care. Acknowledging the unique value of case reports alongside other forms of evidence can lead to a more comprehensive understanding of patient care and outcomes.

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