



What is case report?

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Abstract

This is the first part of a series on case reports. It is a mini review that highlights the definition, types, importance, design, limitations and ethical considerations of case report. This will help junior researchers to comprehend what is the case report as a type of research.

Keywords:

Case report, definition, types, importance, limitation, ethical consideration

Introduction

The case report is a specific type of research design that reports on an aspect of the management of one or two patients. It is the first piece of research writing in the health field and represents the most basic type of study design [1, 2]. Health professionals including medical, dental, preventive/epidemiological, nursing and veterinary describe challenging or unusual clinical situations. Although it is the least publishable unit in the medical literature many journals include a section on case reports. Not all case reports deal with serious health threats; however, they make a contribution to health knowledge and have educational value or highlight the need for a change in clinical practice or diagnostic/prognostic approaches [3].

Definition of Case Report

The clinical case report describes and analyzes the diagnosis and/or the management of one or two patients. It is the first line of evidence in health care and forms the base of the evidence-based pyramid [1] [4, 5]. Some case reports also contain a literature review of previously reported cases [6].

Case reports cover the following: 1)

Unusual observations; 2) an unexpected association between diseases or symptoms; 3) an unexpected event in the course observing or treating a patient; 4) findings that shed new light on the possible pathogenesis of a disease or an adverse effect; 5) unique or rare features of a disease; 6) an unusual combination of conditions leading to confusion; 7) unique therapeutic approaches; 8) variations of anatomical structures; 9) a new theory; 10) a question regarding a current theory; and 11) personal impact [5] [7,8,9].

It is important to differentiate case reports from case series, case studies, clinical studies and case report form.

Case-series studies are simply descriptive reports illustrating observations of interest in many usually consecutive, patients with similar diagnoses or undergoing the same procedure followed over time. There are no control patients involved or initial hypotheses presented, although such studies frequently result in hypotheses that lead to further studies. Because they describe the disease course of the patients involved, they are longitudinal in design. The case series may be used in initial reports of a new diagnosis or

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Editorial

innovative treatment. The size of a case series can range from two or three cases to hundreds or even thousand [10].

A *case study* is a research methodology that has commonly used in social and life sciences to closely examine the data within a specific context. It is the analysis of persons, groups, events, decisions, periods, policies, institutions or other systems that are studied holistically by one or more methods with the aim to generalize over several units [11].

Clinical study is a research study using multiple human subjects to evaluate biomedical or health-related outcomes. The two types of clinical studies are interventional studies (or clinical trials) and observational studies [12].

Case report form (CRF) is a specialized document in clinical research. It should be protocol driven, robust in content and have material to collect the study specific data. Though paper CRFs are still used largely, use of electronic CRF is gaining popularity as they improved data quality, online discrepancy management and faster database lock [13].

Types of case reports

Researchers must be familiar with the different types of case report because each type requires slightly different styles of writing and highlighting key points [4, 5, 6, 7] [9] [14]:

[1] *Diagnosis-related*: describes new, rare, or unusual disease; unusual presentation or etiology of a known disease; unexpected association with diseases; new test or diagnostic method; and diagnostic dilemma or challenge.

[2] *Management related*: describes a new or improved treatment or surgical procedure; a new or rare side effect or complication of treatment; and therapeutic dilemma or challenge.

[3] *Other issues*: such as positional or quantitative abnormalities of an anatomical structure; two or more unexpected diseases or disorders in the same patient; new possible mechanism of injury; and an unusual injury pattern.

Merits of case report

In the age of the clinical trial and evidence-based practice, published case reports continue

to capture and describe important scientific and clinical observations that may be missed or undetected in 'higher hierarchy' designs such as clinical trials [15]. Well documented case reports provide a direction to future clinical studies to augment evidence-based medicine [5] [7]. Additionally, case reports can provide important patient-centered clinical insight that may inform the individualized nature of contemporary patient care. Case reports can generate hypotheses for future clinical studies, guide the personalization of treatments in clinical practice, useful in integrative medicine and help to evaluate systems-oriented approaches to healthcare [15]. It identifies rare manifestations of a disease and used for teaching and review purposes, they can also have a role in research [16].

Limitations of case report

Case reports have certain limitations as inherent properties of the design itself and include the following [17, 18, 19, 20, 21, 22]:

-regarded as low-level evidence as the observations may be subject to bias

-lacks generalizability

-lacks denominator data that are necessary to calculate the rate of disease

-lacks a comparison or control group to compare outcomes and have little statistical validity.

-often describe highly select individuals who may not represent the general population. Since the care rendered to one patient may not produce a similar change in another patient, case reports should not be generalized but for the patient reported.

-infrequently cited, and therefore, publishing case reports are likely to decrease the journal's impact factor. This has led many editors to remove case report sections from their journals.

Design of case report

A case report is an observational, descriptive research design that carefully recorded unbiased observations. The case should be described in details so that others can identify similar cases. The case report should provide information on the patient's socio-demographics (e.g. age, sex, ethnicity, race, employment status, social situation), medical history,

diagnosis, prognosis, previous treatments, past and current diagnostic test results, medications, psychological tests, clinical and functional assessments, and current intervention. Authors explore and infer, not confirm, deduce, or prove. They cannot demonstrate causality or argue for the adoption of a new treatment approach.

Ethical considerations in a case report

Like in any research writing common ethical issues must be considered e.g. authorship, falsification, fabrication, plagiarism, and conflict of interest. A patient's written informed consent is required and the patient's identity, privacy, and confidentiality must be maintained. Institutional review board (IRB) or ethics committee approval is mostly required based on the local institutional policies and/or journal instructions [2] [23]. Some institutions do not require IRB approval for case reports or retrospective chart review with three or fewer cases.

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