EDITORIAL

Why Medical Case Reports?

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Medicine is built up of single cases. Individual patients—single cases—are the essence of what medicine deals with. Every patient is important, and every case can be a lesson. Clinician, researcher, and epidemiologist Alvan Feinstein said, "In caring for patients, clinicians constantly perform experiments. During a single week of active practice, a busy clinician conducts more experiments than most of his laboratory colleagues do in a year."[1]

Medicine stretches between the intertwined poles of being developed in the laboratories of the pharmaceutical industry and in the clinical practice of the "clinical champions"—the innovative clinician, therapist, nurse, or midwife. While the laboratory testing route (pharmacology, quality assessment, phase I-IV trials) is well established, what about the significant clinical observations? How can they be presented scientifically?

There is a wealth of case reports in medical journals and textbooks, and they range from groundbreaking to hardly noticeable. They are a colorful entity in the world of medical literature, but aren't they notoriously biased? Haven't they misled medicine for centuries? Don't they inherently suffer from low methodological quality? Aren't they just singularities and therefore always nonrepresentative? These questions reflect widespread convictions, but the issues have never been systematically investigated, so the answers remain unknown.

Case reports, in fact, do have an important place in medicine. As "cornerstones of medical progress,"[2] they often are the first presentation of discoveries: new conditions, novel therapies, new perspectives in pathogenesis, inventive diagnostic procedures. Their publication often provokes others to try to reproduce the observation and thus to either confirm or refute the initial hypothesis. A recent example is the discovery of beneficial effects of propranolol in severe hemangiomas of infancy, which found its way into routine application after the publication of just a few case reports. Another domain is side effects. The thalidomide tragedy was brought to light by a courageous pediatrician and geneticist, Widukind Lenz, who analyzed and presented numerous cases. About 40% of all side effects are uncovered by case reports.[3]

Many disciplines find themselves represented mainly in case reports. These include not only the legendary Sigmund Freud cases, which introduced the era of the intense and highly differentiated tradition of psychotherapy accounts that form the essence of this therapeutic artistry. Areas of medicine such as pediatric surgery and cardiologic guidelines rely heavily on case reports and case series. High-quality case reports

Case Reports

A common thread in healthcare around the world is that patients receive treatments and these treatments produce outcomes. Reporting guidelines for case reports and their systematic documentation and publication are an important tool to share information across healthcare systems. The editors of *Global Advances in Health and Medicine* believe that high-quality, professional case reports focusing on a systems approach to medicine and the global convergence of conventional and traditional healthcare systems will inform the design and implementation of clinical trials and in turn improve the delivery of healthcare to patients everywhere.

Photos illustrate patient on Propranolol for 12 months.

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An Example of a High-Impact Case Report

Propranolol, a generic beta-blocker, was shown to effectively treat infantile hemangiomas (IH) in case reports published in *The New England Journal of Medicine*[a] in 2008 as a letter to the editor. This finding was confirmed in a case series published in 2010 in the *Journal of the American Academy of Dermatology*.[b] Propranolol is now recommended as a first-line therapy for ulcerating IH. The reasonable safety profile for this drug reduced the need for a randomized controlled trial (RCT), and the lack of compelling alternatives and propranolol's availability as a generic drug further reduced the likelihood of an RCT.

[a] Léauté-Labrèze C, Dumas de la Roque E, Hubiche T, Boralevi F, Thambo JB, Taïeb A. Propranolol for severe hemangiomas of infancy. N Engl J Med. 2008 Jun 12;358(24):2649-51.

[b] Hermans DJ, van Beynum IM, Schultze Kool LJ, van de Kerkhof PC, Wijnen MH, van der Vleuten CJ. Propranolol, a very promising treatment for ulceration in infantile hemangiomas: a study of 20 cases with matched historical controls. J Am Acad Dermatol. 2011 May;64(5):833-8.

not only can be of great support in circumstances in which complex prospective trials cannot be conducted due to practical, ethical, or financial constraints, but they also provide important information for designing clinical trials. As they capture very different aspects of patient care and the course of disease, they can contribute valuable knowledge. Repeated case reports can also refute unrealistic claims if those claims are not replicated in comparable situations, a quality that can facilitate progress and prevent unnecessary trials.

While experimental trials draw their elegance from a clear design with a homogeneous patient group and with highly standardized treatment and outcome measures, day-to-day healthcare often is confronted with enormous complexity: multimorbid patients, patients who do not fit into or do not respond to routine care, patients who show otherwise highly individualized treatment necessities. The current increase in popularity of individualized medicine is one approach to this challenge, mostly on the genetic level. But how do clinicians communicate about complex conditions? How do we exchange ideas about dealing with difficult and highly individualized situations? How do we acquire information and share ideas and existing clinical experiences? In these situations, the priority still lies in direct knowledge sharing by clinicians, especially in the form of personal stories or case reports, which then are melded with formal knowledge. Clinicians, physicians, therapists, nurses—all have a genuine interest in stories and reports that allow for knowledge sharing.[4] In many situations, case reports are the best tool for obtaining information on a treatment, when and how to apply it, and its possible effects, both helpful and harmful.

Medical education and the development of connoisseurship and expertise also depend on cases; even hazard ratios from randomized controlled trials and meta-analyses need to be hooked on stories in order to be memorable. Clinical judgment—the core competence in medicine that links the general formal knowledge to the uniqueness of patients and that is flexible and quickly adjustable to the individual situation—develops through the encounter with hundreds of single cases, one's own and those of one's colleagues, presented in conversation, at conferences, or in high-quality literature reports. Reliable clinical judgment is based on Gestalt principles, on pattern recognition, and not on unformed, premature, naïve statistical associations—and case reports can be as well.[5]

In this time of medical pluralism—the convergence of conventional and traditional medicine—the transparent information and insights about underlying pathophysiological concepts, diagnoses, decisions, treatments, outcomes, and harmful effects can be presented to others through the use of illustrative, comprehensible case reports. They can be the medium for the dialogue, preventing unfruitful hostility and serving patients who often search for help in different medical areas simultaneously. They can unveil the unseen needs of patients and provide suggestions for an improved experience in complex health situations. They can illustrate exceptional or exemplary treatment situations, healthcare in unusual settings, humanitarian work, and ethical challenges. They also can be a voice for patients when they themselves participate in case reporting.

If a culture of high-quality case reporting can be established, if case reports can be published irrespective of outcome, and if these case reports can be made available in a searchable database, one could generate an information pool that would provide a complement to the realm of clinical trials and epidemiologic studies and that—though different in quality and the type of information it provides—would introduce valuable perspectives and ideas. A triangulation of different kinds of results could be an important research tool and could enhance the validity of clinical information, helping to approximate medical truth.

Case reports and case studies will always be multicolored, stretching over the whole spectrum of case claims, anecdotes, detailed medical accounts, case study research, and randomized n-of-1 trials. They are, or can be, the primary instrument for all of the healthcare professionals who want to present their significant observations and share them with others.

Case reports will definitely require elaborate guidelines for the systematic improvement of their quality. The reports would also benefit from systematic investigations of their role in medicine and innovation, the possibilities to reduce bias, and the issue of generalization. It is important, however, to resist the temptation of a strict and general formalization of case reports. What is needed is simply increased quality and efficiency in gathering and publishing the direct clinical observations of ambitious practitioners.

To foster this process, we invite our readers who have a keen eye for the unusual, the interesting, the important to turn their observations into a case report and submit it for publication!

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