The case for case reports

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In the real world, scientific content is not the only criterion on which reports are judged. People (and editors) place different values on different kinds of scientific reports. Reports from authors of industrialized nations are likely to be given more weightage than those coming from developing nations.[1,2] Articles from well-established authors, eminent personalities or those who have made significant contribution to a field stand a greater chance of acceptance than those from new comers. Grammatical and spelling errors in an article lower its chance of acceptance. Articles on drugs which are funded by companies are thought to be less reliable. In the olden days, when there was no online submission, quality of paper and typing of the manuscript also mattered in its acceptance. In general, the use of such criteria to evaluate a paper is discouraged and we are urged to focus on the content of the article.

However, there is one kind of discrimination that appears to be officially sanctioned. Evidence-based medicine is concerned with finding the best evidence for making clinical decisions. Hence, a hierarchy of evidence is proposed with meta-analysis on top which serves as the final evaluation of therapies or tests, especially when their clinical value is not immediately clear-cut. This is followed by randomized controlled double blind studies, cohort studies and case control studies. Case reports and case series constitute the bottom layers of the pyramid and their importance is often questioned. The general perception is that they contain anecdotal reports which cannot be extrapolated to the general population and more often than not, new ideas from case reports are not sustained on further research. They are thought to do more harm than good by highlighting the bizarre manifestations.[3] There is also the perception that case reports and series are easier to write and so are less worthy of respect.

Moreover, the goal of journals to maintain a high impact factor is a major deterrent to the publication of case reports. The impact factor is determined by how often articles from any given journal are cited in other medical publications. Meta-analyses are cited most often and case reports usually receive the least number of citations.[4] This observation makes editors hesitant to increase the number of case reports that they publish.

Case reports and case series, however, have aims that are equally important in the progress of medical science and education.[5,6]

One of the major hallmarks of case reports and case series is their ability to bring out novel ideas.[7] They often serve as the first line of evidence for new therapies. Many of the breakthrough drug discoveries for their use in dermatological conditions have been based on case reports and case series. These include propranolol for infantile hemangiomas,[8] tranexamic acid in melasma,[9] thalidomide in erythema nodosum leprosum,[10] minoxidil for androgenetic alopecia,[11] rituximab in pemphigus vulgaris,[12] dapsone in Behcet's disease[13] where the first four were chance observations.

Many of the novel treatment modalities like pulse therapy in pemphigus,[14] oral mini pulse for vitiligo,[15] two-step regimen for actinomycotic mycetoma,[16] weekly azathioprine pulse for parthenium dermatitis[17] emanated as case reports and case series.

Case reports and case series are often the first and sometimes a major source for detecting rare adverse events. Only case–control studies, or very large cohort studies are able to quantify the occurrence of these side effects. Nicorandil causing perianal ulceration,[18] hydroquinone causing exogenous ochronosis,[19] cyclophosphamide causing neutrophilic eccrine hidradenitis,[20] anti tumor necrosis factor-α medications causing paradoxical exacerbation of psoriasis[21] are examples of rare adverse effects

of drugs used in dermatological conditions which have been highlighted by case series and case reports.

Recognition and description of new diseases, clinical recognition of rare diseases and new or rare presentations of known diseases is another aim of case reports and case series. The serendipitous finding of palmar freckles/melanotic macules in type 1 neurofibromatosis- Yesudian *et al*.' sign,[22] the finding of cerebriform tongue as a clinical sign in pemphigus vegetans,[23] the characteristic diagnostic cutaneous features of pentazocine-induced ulcers,[24] facial acanthosis nigricans associated with obesity,[25] contact depigmentation occurring from free para-tertiary-butylphenol in bindi adhesive,[26] the pattern of frictional sweat dermatitis,[27,28] dermatitis on the knee following knee replacement[29] are all examples of rare but important conditions highlighted by case reports and case series.

The initial report of a clinical finding or syndrome often leads others to recognize the pattern and is followed by a number of other reports. E.g., post kala-azar dermal leishmaniasis,[30] dental amalgam and oral lichen planus[31] and sporotrichoid spread of cutaneous tuberculosis.[32] A case report of an unusual presentation of a disease or of a rare disease encourages physicians of recall of cases that they may have seen and missed. Such a recall would also make physicians more vigilant in future when they see a similar presentation.

Case reports and series also have teaching value as they present a detailed description of clinical cases containing important details about signs, symptoms and other patient characteristics, and report the therapeutic procedures used, as well as the outcome of the case. A case report often serves as the beginning of ones writing career and provides an excellent opportunity for private practitioners to contribute to academic activity. More so in a country like ours where dermatologists are predominantly in private practice. This would enable a large collection of variety of cases.

In addition, in certain situations, a case report is the basis for the elaboration of larger studies. Novel observations in case reports can be followed up by subsequent clinical trials and could therefore be considered to be important hypothesis-generating reports.[33] E.g., propranolol for infantile hemangiomas,[8] minoxidil for androgenetic alopecia.[11]

Case reports are also important as they permit the accumulation of cases which create the conditions for the early perception of a new or resurgent epidemic. E.g., air borne contact dermatitis due to parthenium.[34]

Further, as there are numerous rare diseases in dermatology, it becomes difficult to recruit sufficient number of cases to perform any trial for testing efficacy of drugs. In such situations, the information from case series becomes valuable.

Another benefit of these studies is that they can be carried out by solo practitioners and do not require an institutional set up. Randomized controlled trials, on the other hand, are difficult to undertake and often there is lack of commercial interest in testing older medications or those for orphan diseases.

One of the arguments against case reports and series is that they have lesser specificity for medical decision making.[5] However, Chalmers drew attention to a review of the number of side effect reports that were ultimately sustained: After further investigation, 35 of 47 anecdotal reports were qualified as "clearly correct."[35,36]

Moreover, a case report backed by good quality photographs does not hide or distort facts, something which other studies cannot claim.

With all these advantages to its credit, it is now a question of debate as to whether case reports and case series deserve to be at the bottom of hierarchy of evidence. There is a clear misrepresentation of these and their value is underrated.

Case reports and series have their own share of drawbacks.[37] Case reports and case series base their conclusions on a small number of cases. The reported case may not be representative of the entire spectrum of disease. There is no control group incorporated for comparison. Case reports and series do not have a methodology capable of validating a causal relationship and the diagnostic methodology is not standardized. Furthermore, there is a marked publication bias associated with case reports: Only impressive or interesting situations are likely to be reported. In one survey, the number of published case reports and case series reporting successes was 90% versus 10% reporting failures.[33]

To conclude, case reports and series are a necessary element of medical publishing. Their major role is in reporting novelty though they have the drawback of an excessive emphasis on the unusual.

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