
The Case for the Case

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The advent of evidence-based medicine (EBM) has focussed the minds of most researchers on the hierarchical structure of clinical evidence. Although biological variation by its very nature forever precludes medicine from being an exact science, such as e.g. physics or mathematics, the application of EBM nevertheless increases the likelihood that a clinical decision will work as intended. In this hierarchy of clinical evidence the case report scores low, and has therefore received some scorn in the circles of EBM. This is not intellectually well-founded scorn for three reasons: the generation of new hypotheses, the numbers needed to generate strong evidence and education.

The hierarchy of EBM is not a discontinuous hierarchy, although it could theoretically be seen as such. The different levels are very strongly connected by logic. The higher echelons of evidence are entirely dependent on the existence of the lower ones. For example, the lowest form of evidence, i.e. that of expert opinion, is an absolute prerequisite for creating any other kind of evidence. It is not possible to imagine a research programme not based on an idea or an opinion. The hierarchy is therefore a progressive continuum, not unlike human evolution, where crawling precedes running – and although world championships are created for running that does not mean that crawling is uninteresting to the individual.

In the EBM hierarchy the case is often perceived as low evidence because observations in low numbers are difficult to generalise. Clinical trials usually require hundreds of systematic observations, and epidemiologists are even more voracious in their demands for numbers. It is true that only rarely can a case be elevated to absolute evidence of something, but since absolute evidence is not possible anyway it is fair to examine the role of the case in a more constructive manner.

We develop knowledge through systematic observation, which generates logical testable hypotheses based on previous knowledge. This reflects the close relationship between observation and experimental testing so central to all development in medicine and natural sciences. It is possible to generate hypotheses without observation if sufficient understanding of the underlying mechanisms exists, but often such hypotheses will have

to be confirmed by observation. It is, however, just as certain that observation can generate a testable hypothesis. Cases are often such observations. The use of TNF- α inhibitor in the treatment of hidradenitis suppurativa is one of the latest such observations. A serendipitous observation of regression of hidradenitis suppurativa in a patient treated with TNF- α inhibitors for another disease has led to systematic research of the area that will provide additional evidence of a higher EBM grade in the foreseeable future. The case is a natural starting point for generating a hypothesis, connecting the hypothesis with the physical world and thereby providing pivotal information.

Secondly, generating stronger statistical evidence requires numbers. As a rule of thumb more is better, although not much improvement can be expected beyond a certain point. Nevertheless, this number is often considerably higher than that of many of the diseases dermatologists deal with in their everyday clinical practice. Dermatology is unique because of the large number of diagnoses, which means that many of them are rare and therefore unlikely ever to be the topic of e.g. a randomised controlled trial. It would be hard to organise a trial of e.g. pseudopelade with sufficient numbers. For such rare diseases careful case reports are therefore often the best level of evidence attainable, until genetic testing will provide new insight into aetiology and pathogenesis at some point in the far future – perhaps.

The final aspect of the case is that of education. We often learn through theory and remember through example. A good case can therefore both remind us of the theory as well as of specific characteristics that may otherwise be forgotten. So not only can cases generate hypotheses, they can also remind us of the salient facts when the hypotheses have been thoroughly investigated and proven through additional research. Observation can both generate and confirm a hypothesis.

Taking these aspects of the case together it should be obvious that the case continues to be a core element of medical development and education.