GETTING WHAT YOU NEED FROM MEDICAL RESEARCH

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There is no denying that one of the biggest challenges faced by the current medical professionals is to keep in touch with the latest in literature. The number of articles published in a variety of journals, the high level science involved and the online materials available, can all be unnerving, to say the least.

Completion of human genome project, in vitro fertilization, stem cell research and sequencing of microbial genomes marked the advances made in the last decade and this decade is expected to show us the identification of molecules against which drugs will be targeted. The correlation of genomics, proteomics and metabolonomics to conventional pathology and microbiology holds promise to understand interactions of gene and environment in human disease. Microarrays will add to the available techniques in diagnostics.

How does one determine what is important to read in a given period of time? To my mind the key factor is relevance. If what we read is unlikely to add to our practice of microbiology, patient care and research interests, it may not be worth spending time on. Journals with good impact factors generally carry good science. However, lesser-known journals may have interesting and relevant literature. It is important to get a national perspective by reading national journals.

The other key factor that may help decide whether a study is good enough to spend time on is the study design. Case series must be read with caution as they present one group’s findings. While the comparative studies are superior to case series, the best studies are randomized. A good randomized study with adequate sample size is likely to provide dependable results. Any evidence of selection bias should be carefully looked for in the study. The data provided in the article should be statistically analyzed (if possible) to confirm that the methods used are correct. Sometimes additional data may be available on the journal website which will allow such analysis. The actual purpose of the study design is for the reader to be able to replicate the study; therefore, the methodology should have adequate details for it. Extrapolation of the results often depends on the study design employed.

Reader value of an article is high in prospective studies. In a retrospective study the authors notice something, look back and write about it. In contrast, in prospective studies, a question is asked first, normally with a hypothesis and then it is tested whether it is true. The value of a prospective study with appropriate outcome measure and adequate sample size is several folds higher.

Being skeptical (without being cynical) about the conclusions in published literature is one of the ground rules since a large number of published literatures may have faults, whether national or international, whether of high or low impact factor. Readers should be wary of online journals that have proliferated in the recent past. It is also a good idea to be careful in accepting the conclusions of sponsored studies. Many funding agencies may influence study designs that will favor them.

Stringent regulations by peer-reviewed journals have made the abstracts informative in good journals. Although abstracts show the overall content of the article, they may be far from reality. Therefore, readers may do well to at least read the last part of discussion to get a clearer picture.

The web technology has reduced the errors in back references to a remarkable extent in peer-reviewed journals and the access to various related links adds to the growing knowledge in medical research apart from preventing the authors from quoting articles that they have not read and are not available.