All About Medical Journals and Articles

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How to make head or tail of a medical article:

Introduction: Medical journals are an integral part of the learning process for a doctor. We are exposed to this from the time we are students and more of it during post graduation. " Journal clubs" are an essential part of the PG training. Medical Journals contains various types of articles. The Editorials, original articles, case reports, reviews etc. In this section we will concentrate on what is an original article and how to understand the various terms used in it.

An Original article is a original research involving a large number of cases that has derived conclusions and is conducted by a researcher or a group of researchers, in contrast to a case report which contains descriptions of rare cases, rare complications of common cases or efficacy of new treatment in a few cases, In an original article what we see first is the abstract, which is a synopsis of the original article which is printed on the first page. This is the most important section, which needs to be read first as it gives an idea of the contents of the whole article. If one goes through the various abstracts in a journal one can finish reading a journal in a few hours and then concentrate on few select articles in detail.

Original Articles are published in the following format:

Introduction: Introduction contains details about the condition being studied, some details about previous studies on the same topic and why a fresh study has been undertaken.

Materials and Methods: This is the most important sections that contains details of the study carried out - the type of study, the number of patients involved, the duration, the methods used including details of the lab techniques, the statistical methods used of analysing the results etc. The various terminology used will be discussed later.

Results: The results of the study are described in this section, usually with tables and graphs and statistical analysis.

Discussion: This section discusses the results, the differences and similarities from previous studies, the reasons for discrepancies and the implications of the research in clinical practice.

Conclusions: The "take home" messages are listed in this section, with future recommendations.

References: All research papers quote-previous papers, the complete listing of which is given in the reference section. There is uniform method for listing the references, which is usually followed.

Terminology is Medical Research:

Study Methods: The various study methods are usually given out in the materials and methods sections, some of the common ones are discussed below.

Cohort Studies :In a cohort study, two (or more) groups of people are selected on the basis of differences in and followed up to see how many in each group develop a particular disease or other outcome. For example, following up neonates born with low or normal birth weight over a period of time to check to for consequences of low birth weight. they are concerned with the etiology of a disease rather than treatment.

Clinical Trials: These are trials involving therapy, diagnosis, prognosis, screening or causation; they can be prospective or retrospective based on time frame. Clinical trials usually involve tow or more groups - a control group which does not receive any intervention, while there may be two or more intervention groups receiving various treatment methods. Clinical trials are either *Randomised or non-randomised*. Randomisation means that patients are randomly allotted to the various control/intervention groups and can be carried out by various methods. It helps in eliminating the bias that can creep into the research methodology. "*Blinding*" is a technique wherein the investigators who administer the intervention do not know the whether the patient is receiving the treatment or the placebo. A common form of trial is the double blind randomised controlled trial, where the patients and investigators do not know about the intervention. If only the patient does not know it is called the single-blinded trial. *Crossover* Each subject received both the intervention and control treatments (in random order), often separated by a washout period with no treatment. *Placebo controlled* Control subjects receive a placebo (inactive pill) which should look and taste the same as the active pill. Placebo (sham) operations may also be used in trials of surgery.

Case-Control Trial: This is a trial where 'cases' or patients with a particular disease and 'controls' or healthy controls are compared to elicit the causative factors or a disease. This is a retrospective trial because the event has already happened. Like cohort studies, case-control studies are generally concerned with the aetiology of a disease (what causes it) rather than its treatment.

Cross-sectional studies: These are studies that are carried out at a particular point of time. For example recording

the weights/heights of all school children, the prevalence of a particular disease at a particular time, the prevalence of metabolic syndrome in obese children are cross sectional studies. In cross sectional surveys, data are collected at a single time.

How to read the paper:

With an insight into the terminology and the methodology, we can actually read the medical research paper. The following will need to be kept in mind when reading a paper.

1. Read the Title
2. Read the abstract.
3. In the Introduction to ascertain whether the study aims to answer a new question or is a repetition of a previous study, if so why?
4. What is the methodology - Are the number of subjects adequate? Is the study randomised and blinded. Are the lab methods used appropriate? Is the study ethically correct and ethical approval has been taken? What are the sources of funding? This can reveal some competing interests; like a pharmaceutical company having an interest in the trial. It has been found that studies funded by pharmaceutical companies significantly have positive results.
5. Have the results been statistically been analysed and the statistical method used appropriate? This will a basic idea of bio statistics, which I hope deal with in future sections. Have the results been properly tabulated and compared?
6. Are the conclusion drawn from the results accurate? Is there a take home message that will have effect on your clinical practice?
7. Have appropriate and latest references been used?

Conclusions:

In this section we have dealt with how to read a journal article and the common terminology used in medical research. Some additional sources of Information:

BMJ Topic Collections Journology –
- "http://www.bmj.com/cgi/collection/authorship"
- "http://www.bmj.com/cgi/collection/authorship"
- http://www.bmj.com/cgi/collection/authorship;

- "http://www.bmj.com/cgi/collection/peer_review"
- "http://www.bmj.com/cgi/collection/peer_review"
- http://www.bmj.com/cgi/collection/peer_review;
- "http://www.bmj.com/cgi/collection/research_and_publication_ethics"
- "http://www.bmj.com/cgi/collection/research_and_publication_ethics"
- http://www.bmj.com/cgi/collection/research_and_publication_ ethics;
- http://www.bmj.com/cgi/collection/journalology

Journology or what editors do:
www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1664073

How to read a Journal Article:
http://www.childrens-mercy.org/stats/journal/jour2003-07.htm

References:

1. Sackett DL, Haynes RB, Guyatt GH, Tugwell P. *Clinical Epidemiology: A Basic Science for Clinical Medicine.* London, Little, Brown, 1991.

2. Oxman AD, Sackett DS, Guyatt GH. Users' Guides to the Medical Literature. I. How to Get Started. *JAMA* 1993;270:2093-5