Evidence-based management of reproductive problems

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Evidence-based medicine has become the catch-cry phrase of the 1990s. It is about using evidence from well-designed research and applying it to everyday practice. It would be a difficult task to appraise all the evidence from research without the help of well-prepared systematic reviews. This article examines some aspects of this approach.

Evidence-based medicine is about taking the best clinical evidence from systematic searching of the research and translating it into individual patient care; or to put it more simply, it is for those health professionals who wish to put the results of scientific research into everyday practice. It is defined as:

> **'the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients' (Sackett, 1996).**

Over the last decade there has been an explosion of interest in evidence-based approaches to a diverse range of topics, and it is not surprising that it has been applied to the area of reproductive medicine. For some clinicians this has been interpreted as simply reading papers and following conclusions. However, this approach (which may have been satisfactory 30 years ago when medical literature and research were less prolific) is doomed to failure because of the considerable increase in medical and scientific literature over recent years.

For example, if you wish to find out the most effective treatment for heavy menstrual bleeding, you may seek a review article written by an expert. Within this article you notice a lack of randomized controlled trial data, but you recall one randomized controlled trial in the use of non-steroidal anti-inflammatory agents that demonstrated effectiveness. However, basing management on one study may be misleading — was the trial well designed, how did they assess improvement in menstrual blood loss, and what sort of patients were included in the study? Therefore you decide to go a step further and look for other randomized controlled trials of medical treatment of heavy menstrual bleeding. You search MEDLINE and find over 40 articles on this topic. How do you cope with this volume of research? Should you request all the papers? Once the papers arrive, how will you sift and compare their interventions and outcomes? It is an overwhelming task for any individual clinician to undertake in a short timeframe.

An alternative approach and one that has become familiar is to seek reviews of the evidence that have been systematically prepared by a group of independent individuals, and that have undergone a peer review process. Many such reviews of clinical therapeutics are now being published and these are the main focus of the Cochrane Collaboration.

THE COCHRANE COLLABORATION

Archie Cochrane (1909–1988) was an epidemiologist and clinical trialist who recognized the need for a systematic approach to the evaluation of therapeutic interventions. In 1979, he wrote:

> **'It is surely a great criticism of our [medical] profession that we have not organised a critical summary, by specialty or sub-specialty, updated periodically, of all relevant randomised controlled trials.'**

The Cochrane Collaboration is an international network of individuals and institutions that have attempted to answer Cochrane's challenge by making information readily available to those who seek it. The Collaboration focuses on preparing systematic reviews of therapeutic interventions using evidence from randomized controlled trials (lesser levels of evidence from observational studies may be used if no data from randomized controlled trials are available).

Collaborative review groups have evolved which cover most areas of health care. There are

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currently over 40 Cochrane review groups and seven of them deal directly with reproductive health. They are:

- The Cochrane Pregnancy and Childbirth Group
- The Cochrane Menstrual Disorders and Subfertility Group
- The Cochrane Incontinence Group
- The Cochrane Gynaecological Cancer Group
- The Cochrane Fertility Regulation Group
- The Cochrane Neonatal Group
- The Cochrane Breast Cancer Group.

Over 200 systematic reviews relevant to reproductive problems are currently available on the Cochrane Library. A similar number are at a protocol stage.

WHAT IS A SYSTEMATIC REVIEW?

A systematic review is one where a systematic approach is applied to identify all the relevant controlled trials asking the research question, the data is extracted and a systematic report is published both electronically and often in scientific publications (*Figure 1*). This is available as both a CD-ROM and on the internet website http://www. update-software.com/clibhome/clib.htm. It is probably the best source of evidence currently available because the process attempts to reduce all possible forms of bias.

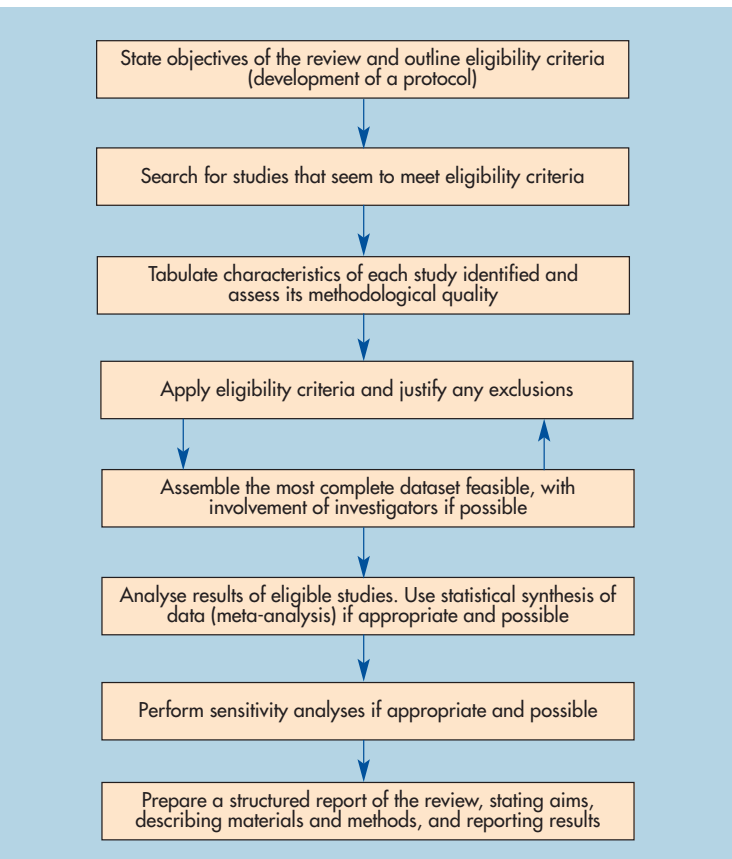

Figure 1. Flowchart of a systematic review.

IS THERE A LACK OF EVALUATION OF THE MANAGEMENT OF COMMON REPRODUCTIVE PROBLEMS?

There has been a tendency in gynaecology and reproductive medicine to introduce new treatments before full evaluations have been reported. New therapies are often rapidly embraced by clinicians without waiting for evidence from randomized controlled trials. Meanwhile, problems may arise with the new treatment, usually because of overenthusiastic application of the treatment. Often the treatment is then abandoned as unhelpful or unsafe.

Endometrial resection is an example of this tendency. However, now that long-term evidence is available from randomized controlled trials of resection *vs* hysterectomy, its role as a valuable alternative to hysterectomy has become established. After 4 years follow-up, 76% of women randomized to resection have avoided hysterectomy (Aberdeen Endometrial Ablation Group, 1999). The social and economic impact of this on a woman's domestic and professional life cannot be overstated, as the mean difference in time off work between hysterectomy and resection was 5 weeks (Lethaby et al, 1999).

Another problem is that ineffective treatments are not abandoned for years, even when adequate randomized controlled trials showing no effect are available. While using ineffective treatments may not be 'harmful', delays in commencing effective treatment may result in patients missing out altogether. For example, in two surveys of the use of medical treatments for heavy menstrual bleeding, both GPs and specialists used luteal phase progestogens as a firstline treatment, while effective treatments such as tranexamic acid were prescribed infrequently (Coulter et al, 1991; Farquhar and Kimble, 1996). In such cases, patients may seek surgical interventions and effective medical treatments are overlooked altogether.

Another example exists in the management of subfertility and mild endometriosis, where a systematic review has not demonstrated benefit from medical therapy (Hughes et al, 1999). However, one survey found that 77% of gynaecologists chose to prescribe medical therapy even though it will delay chances of fertility by suppression of ovulation (C Farquhar, personal communication, 1996). Furthermore, in the case of older women, such delays will impact on the success rates of assisted reproductive technology.

CONCLUSIONS

Evidence-based management is about applying the findings of research to the individual patient setting. In order to do this it is necessary to conduct systematic reviews of the evidence from randomized controlled trials. The Cochrane Collaboration is a source of high-quality systematic reviews. HM

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KEY POINTS

- Evidence-based medicine is about using evidence from well-designed research and applying it to everyday practice.
- The Cochrane Collaboration is an international collaboration of researchers, clinicians and consumers who prepare systematic reviews.
- The Cochrane Library contains nearly 600 completed reviews and more than 200 of them relate to reproductive health.