



II. MEDICINA BASADA EN LA EVIDENCIA

A critical view from the clinician

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FROM OSLER TO COCHRANE AND SACKETT: THE ROUTE FROM CLINICAL ABSTENTIONISM TO EVIDENCE BASED INTERVENTIONS

Modern clinical medicine starts in the early years of this century. The father-founder of what we consider modern medicine was William Osler. Osler was a gifted clinician that blended scientific rigor and humanity. Osler had a long and successful career. He studied medicine in Toronto where he also spent the early years of his career. Then he moved to Baltimore. In the last part of his career he moved to Oxford to take a Regius Chair of Medicine. Osler considered the John Hopkins University his «alma mater», the university at his heart. The influence and the memory of Osler in Baltimore are long lasting and this university has dedicated a free electronic journal on Evidence Based Medical Practice to Osler¹. Osler was very astute at the bed of the patient. Careful clinical observation and insight were at the basis of Osler success and to him teaching medicine was transmitting these qualities to his collaborators and to young doctors in a sort of osmotic process. Osler teaching was only based on clinical expertise, that is experience gathered in uncontrolled, unblinded case-series. Osler wrote a landmark book «Principles of Internal Medicine» which was based almost entirely on his clinical expertise. In this book several empirical treatments which were in fashion at the end of past century were carefully analysed and finally considered of dubious value. In some way this criticism was revolutionary and Osler contemporaries criticised the book as a book overemphasising diagnosis and neglecting treatment. Truly speaking, Osler promoted an attitude of pondered therapeutic abstentionism among doctors. Yet in a few years «Principles of Internal Medicine» became a standard, undisputed reference and remained so for three generations of doctors. The post-Osler era started in the 50's. New technology, experimental insightfulness and systematic application of rigorous biostatistics profoundly changed the panorama by introducing several new effective treatments. If we evaluate the quality of studies in medicine on an arbitrary scale where 100% is today level, we note that basic sciences reached

very quickly, in the sixties, a quality level comparable to the present one (fig. 1). It is perhaps this rigorous methodology of basic sciences that gave us vaccines, antibiotics, cardiovascular drugs and that now has opened the door to gene therapy. The ascendancy of clinical medicine has been somewhat sluggish in comparison to that basic sciences. It is only in the nineties that evidence based medicine was born.

The reason why clinical medicine lagged behind basic science depended mainly on the fact that doctors were reluctant in accepting the probabilistic approach. Medicine was considered as an art rather than as a science. The side effect of this reasoning was that professional knowledge tended to be separated from clinical practice. As a consequence, useful scientific information was not timely recognised and incorporated into clinical practice. This situation generated a sort of medical entropy and a progressive decline in quality.

Evidence Based Medicine was the natural response to this situation. The late Sir Arthur Cochrane conceived the idea that clinical practice should be solidly anchored to the best clinical studies. But the man who championed Evidence Based Medicine worldwide was David Sackett, a doctor that, like Osler, ini-

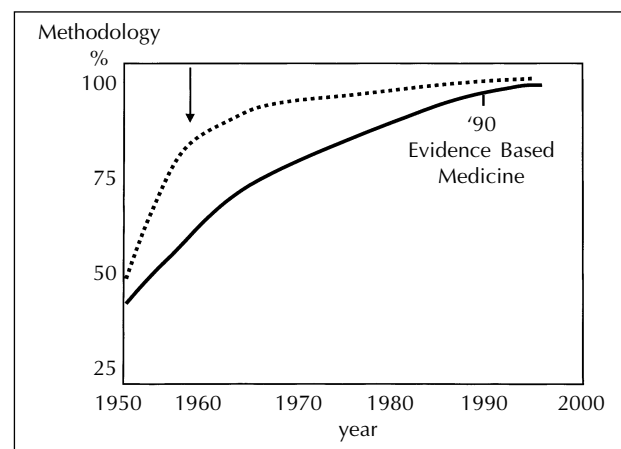


Fig. 1.

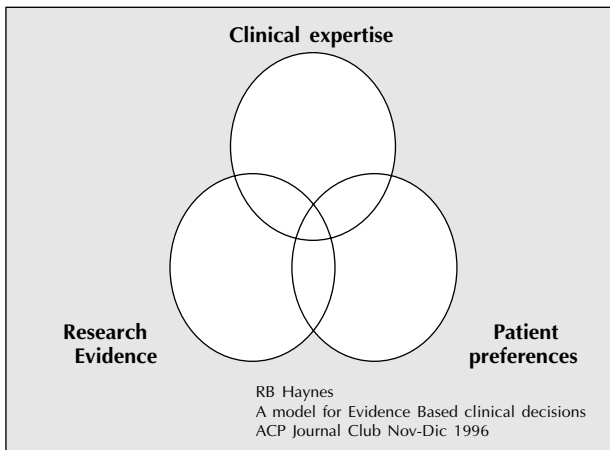


Fig. 2.

tiated his career as nephrologist in Toronto to eventually become professor of Medicine in Oxford.

EVIDENCE BASED MEDICINE: LIGHTS AND SHADES

Evidence based medicine cannot in any way be considered as a refusal of clinical expertise². Rather it is a sort of melting clinical expertise with the best research evidence as well as with the expectations and desires of the patients (fig. 2). Evidence based medicine starts from the clinical problem. Clinical expertise is essential for properly planning clinical decisions that is diagnosis, prognosis, treatment. The novelty in this approach is that clinical expertise is then filtered through the best research evidence. The decisions are legitimated only if they are supported by properly conducted clinical studies. That is by studies adhering to the dictate of clinical epidemiology.

Clinical epidemiology is the basic science to clinical medicine. According to this science every decision, be it diagnostic, prognostic or therapeutic has to be based on valid studies. Thus if we are to adopt a new diagnostic test we ought to validate it against a golden standard and only if it is concordant with the golden standard we can consider the test as a valid test. When we formulate a prognosis we should base prognosis on outcome studies which enrolled patients in the early phases of the disease. Indeed outcome studies based on the clinical onset of the disease may produce a distorted interpretation of the course of the disease. Finally when we have to prescribe a treatment we must direct our choice towards treatments of proven value, i.e. tested in randomised, controlled trials.

The most serious problem to the widespread use of evidence based medicine is the difficulty of finding the relevant studies to answer the particular clinical problem we are facing in a reasonable time. A problem with books is that they are rarely updated. For example, the Brenner is updated every 4 years. Medical journals are certainly updated but here the problem is that they contain only very limited information relevant to clinical practice. When we scrutinise general medical journals (like New England Journal of Medicine, Lancet etc.) to see the amount of information immediately relevant to clinical practice we soon realise that only a relatively small fraction of the articles is truly applicable to the patient management^{3,4}. Nephrology journals are even more discouraging, in these journals the articles on diagnosis, prognosis or treatment are a very tiny fraction indeed (1 to 2%).

The solution is given by computer technology and the Internet. We have now rich and easily searchable data base of clinical studies, sort of electronic books. UpDate, the electronic book initiated and maintained by Burton David Rose, the summaries prepared by the Cochrane collaboration, the summaries of the American College of Physicians to name only a few important sources of information. The Harrison has now landed in the Internet⁵ and it is updated every two weeks. These electronic publications present the information in well conceived and rich summaries. When we face rare and unusual clinical problems the National Library of Medicine offers free access to a database of about 10 million references, a gigantic encyclopedia of medical knowledge⁶.

THE EVIDENCE BASED APPROACH IN EVERYDAY CLINICAL PRACTICE

The basic matter of medicine is Diagnosis, Prognosis and treatment. Selecting the more appropriate studies whereupon deciding the treatment of a patient is a subject that has been exhaustively covered in medical journals⁷. We all know that the best studies are those based on correctly performed systematic reviews or meta-analyses of randomised clinical trials (RCT) (for example see Ref 8). The second rank in this hierarchy is taken by the single RCT followed by prospective and retrospective studies, studies based on historical controls down to case series and consensus of experts. Consensus is the weakest evidence: what the experts believe may be wrong and we know that there are several examples of consensus statements that did not hold the test of randomised controlled clinical studies. I considered

the evidence based approach to diagnosis in a recent review⁹, therefore here we will focus on a prognosis.

A prognostic exercise

Prognostic information in relationship to treatment decisions is most frequently needed in patients with mild essential hypertension. Thanks to the Framingham studies we know that hypertension is a risk factor that should be considered in the context of the full list of major risk factors (Framingham risk factors) i.e. sex, age, smoking, cholesterol, diabetes, LVH. The evidence based approach demands that the decision about starting treatment in a patient with mild hypertension should be based on the overall cardiovascular risk calculated on the basis of the Framingham equation¹⁰.

Let's make a calculation exercise in a 40 years old patient with systolic pressure ranging from 140 to 150. By using the equation we can calculate that the 10 years risk of coronary events in this patient is 5% if he has isolated mild hypertension, increases to 7% if he has also hypercholesterolemia, to 12% if he is mildly hypertensive, hypercholesterolemic and smoker and to 16% if, in addition to these risk factors, he is also diabetic. Once we have the overall risk calculated on the basis of the equation, we ought to set a treatment threshold. We can adopt the threshold stated in the guidelines of the British Hypertension Society (15%)¹¹ which is identical to that selected by the International Society of Hypertension and to decide accordingly, i.e. to treat only those with a risk higher than 15%. However making such calculations in everyday clinical practice is unrealistic. Doctors do not like nor have time for boring calculations. They need a cheap, easy to use computer program. The British Hypertension Society provides a free program in the Internet¹¹ but a better program can be bought at very low cost from the BMJ house. This program requires that the doctor enters patient's data about Framingham risk factors (fig. 3). On the basis of these data the program calculates the risk, which is then presented to the doctor in numerical and graphical terms. A very interesting feature of this program is the possibility of modelling the effect of risk reduction. This is very useful not only to the doctor who directly appreciates the potential effects of the interventions he is planning but also to the patient who may visually grasp the benefit that he may obtain.

Evidence based medicine is the blending of clinical expertise with research evidence and patient's

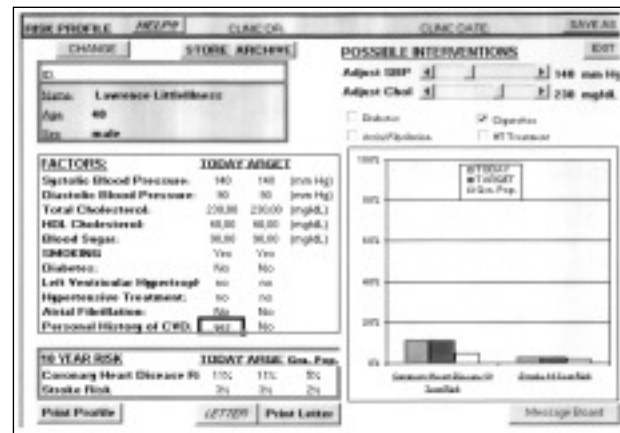


Fig. 3.

preferences. Getting the best research evidence is not easy and it is greatly facilitated by the use of the computer. Resistances to the new approach are weakening and the new generation of doctors will certainly practice a medicine based on more solid science. Computers and the Internet will dominate the scene and being an updated doctor aimed at giving evidence based medical care will certainly demand an increasing degree of computer knowledge.

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