

RINCKSIDE

VOLUME 14 • 2003

SCIENCE
MEDICINE
IMAGING
ACADEMIA
PHILOSOPHY
ETHICS
SATIRE
ADVICE

ISSN 2364-3889

RINCKSIDE

ISSN 2364-3889 • VOLUME 14, 2003

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From ECR 2003: From EPOS without EROS to L5/S1

Peter A. Rinck



Happy days are here again

It's good to be back to Vienna. Spring seems to be a little late this year, but one feels it is around the corner somewhere. You are looking forward to your Wiener schnitzel, although in most places it will be pork, not veal. Well, I am basically looking forward to some Italian restaurants ... and their wines.

As often happens, my plane was delayed. I was on a Tyrolean Air flight, which used to be among the better airlines in Europe. Now it is owned by Austrian Airlines – or *vice versa* – and passengers are treated according to AUA's standards, getting yesterday's newspapers for in-flight reading.

I love talking to taxi drivers and getting their view of the world. I have found that there are two different kinds in Vienna: drivers from former Yugoslavia who do not know or pretend not to know their way. Then there are the Austrians who often comment on the state of Austrian and international affairs in a manner incompatible with polite diplomatic phraseology: the voice of the people.

Listening to them, I wonder what happened to the threats of a boycott of ECR by some colleagues three years ago. Whom would they like to boycott today? I have not heard any outcry this year. Anyway, we have happily arrived in Vienna.

■ In former times I used to get extremely stressed by congresses. I remember one congress where our department had 17 or 19 presentations. It was one big strain that was topped by a minor detail: my rental car was stolen in front of the hotel. In Vienna I use the subway. It is easy, convenient, and I could not care less if a subway train gets stolen.

Another of the advantages of holding the congress in Vienna is the lack of a special kind of harassment: the American-style breakfast meetings. I hate those six o'clock gatherings at the annual meeting of the RSNA where people who are still sleeping - and smell like that - try to discuss the contents of the next

six to eight issues of the scientific journal with the dark blue cover, or something similarly important. I prefer to have breakfast in a leisurely mode, reading a newspaper in a kaffeehaus, and then take off for the meeting.

Although the Austria Center seems to grow a little bit every year, the ECR has the advantage that it is difficult to get lost; at least not as lost as you can get at the RSNA meeting. On the first day, there is a kind of morning confusion that is balanced by a touch of expectation. You are looking forward to getting new impressions and information about the developments in the field and to talking to people you have not seen for a year or even longer.

I had the impression that the main hall was even more crowded than in previous years. Let's wait for the official count of the number of participants.

How else do you recognize that it is the first day of the conference? People are dynamic and have fresh faces: hangover time starts on the second day.

■ I heard this joke today: How do you tell it's four o'clock in the radiology reading room? Answer: The radiologists are pointing out the lesions with their car keys.

Radiology for everybody

An interesting aspect of the ECR is the presentation of the diversity of the field. A wide range of topics is covered, from cutting-edge technology to bread-and-butter radiology. The amount of information is overwhelming.

On Saturday Gustav von Schulthess talked about "Molecular imaging at its best," and on Monday he will continue a session on PET/CT fusion imaging. Molecular imaging and image fusion have been buzz words for several years now. Not many people know what molecular imaging really means; therefore, the workshop on molecular imaging was an excellent introduction to the topic, with an emphasis on the current state of the art and future prospects.

One way to do molecular imaging is to use hybrid PET/CT machines. These systems still perplex me. Combining what used to be two completely different technologies and exploiting their synergies is a baffling development. However, the result is the often stressed one-stop shop for the patient.

It seems that once again diagnostic pathways in cancer detection and treatment monitoring will change. PET/CT is claimed to improve everything substantially: sensitivity, specificity, efficiency, and diagnostic accuracy. In addition, it is cheaper. Some speakers can be very persuasive. The data look promising.

■ A different world opens in the entrance area of the congress. Harald Østensen and the WHO team of Diagnostic Imaging and Laboratory Technology (DIL) respond to completely different needs. They help develop educational material and design training courses and workshops tailor-made to the needs of small and midsize hospitals in countries with sparse resources. This does not require "great science," but does call for great enthusiasm and persistence.

One of the main objectives is to train local trainers according to local needs. The description of these efforts is given in dry words, but I always admire people who get involved in helping others – sometimes on a shoe-string budget.

Østensen is grateful that the European Congress of Radiology has generously granted and facilitated this year's WHO exhibition of its current activities in the field of diagnostic imaging. This, again, is a nice aspect of the meeting and its organizers. There is little money and thus hardly any commercial interest in low-level radiology. However, the two general-purpose x-ray machines manufactured according to the WHO specifications, the World Health Imaging System for Radiography (WHIS-RAD), are exhibited here. Go and look at them. Life and radiology are different elsewhere.

■ Question of the day: Are refresher courses really refreshing?

Electronic posters have pros and cons

Many of the pictures and paintings shown in the ECR publications this year are from Crete. The meeting's president, Nicholas Gourtsoyiannis, works in Iraklion, the capital of this island. Here, beginning about 4000 years ago, the remarkable civilization known

today as Minoan developed, flowered, and declined. It was the first great civilization on European soil. Minoan art is the most cheerful and gracious of all the arts in antiquity. There are no scenes of bloody battles; Minoan frescoes are fresh and natural.

■ Until last year, the frescoes shown at the ECR were of a different style: scientific posters. This spring in Vienna, there are no posters. As Professor Gourtsoyiannis writes, a new era of scientific exhibits is heralded by EPOS, the electronic poster online system.

Posters usually contain more scientific information than eight-minute oral presentations; you can check and digest the contents at your mental pace and even come back to them at a later time during the conference. I like well-made posters; they are an excellent means to transport information in a compact way. And if posters are ugly, it does not mean they are bad.

Here are some comments I overheard at the exhibition: "If I get the entire scientific contents delivered by computer, why travel to Vienna?" "It is easier to digest the contents of a paper poster than those of an onscreen poster." "A meeting without 'real' posters loses its unhurried mode of meeting and talking to other people in front of the poster."

I do not completely agree with all those comments, but the last one is true. The atmosphere in the poster-viewing area is subdued, as in a cathedral or a university library. Nobody talks; everybody stares at her or his computer screen and tiptoes out of the area when finished. There are of course numerous advantages that have been presented in detail by the organizers. As I see it, there is an additional genuine asset:

It is difficult to distinguish poorer from richer institutes. In paper posters you can have graphically poorly made presentations and displays where you see that money was not a limiting factor. Although it might sound inconsistent with computer graphics technology, EPOS with its computer-based presentations could become an equalizer and allow a stronger focus on contents than on appearance.

I would like to send sincere applause and congratulations to all those who contributed to making EPOS succeed. However, nowadays many people confuse tools and contents.

At the end of the meeting we will see whether on-screen posters were really an improvement, or if they might become a way for fast and poor abstract publications.

■ "EPOS", explained Professor Gourtsoyiannis, "is Greek for an epic feat." I am looking forward to next year's staging of ECR's EROS era.

Sick radiologists

Last year I got sick on the fourth day of the ECR. Between lunchtime and dinner I came down with a flu – not a funny cold, but a real flu. Intelligent as I was, I packed my 30-kilo suitcase immediately, left out the bare essentials, and went to bed in my hotel. That was a good idea because I couldn't have packed the suitcase two days later, when I drowsily left for the airport drugged to my gills.

Arriving at home I went straight to bed again and stayed there for another three days, feeling moribund as all sick men do in such cases. On day five I tried to get up, but excruciating pains stopped me. I could hardly walk: something had moved between L5 and S1.

What do you do as a man, physician, and radiologist in such a case?

First, you return to bed and feel pity for yourself. Then you ask the commiserating cleaning lady what she would recommend in your case. Then you make a preliminary diagnosis and decide that anti-inflammatory drugs and avoidance of any medical help would be the best. This is when you remember that you have preached that radiological examinations, particularly MR imaging, are of no use in cases when patients can still move, there is no paresis, and surgical treatment is not imminent.

Which takes us to the Wilhelm Conrad Roentgen Honorary Lecture by Adrian K. Dixon of Cambridge University, which dealt with "Imaging of the lumbar spine: why, when and how?"

Dixon pointed out that imaging of the lumbar spine remains complicated despite the amazing advances in CT and MRI. Plain radiographs confer little or no benefit because they cannot reliably demonstrate any of the key disorders of the lumbar spine – disc herniation, disc space infection, spinal stenosis, malignancy, or osteoporosis. CT has largely been super-

seded by MR imaging, although CT remains the gold standard for density measurements and fractures. MR imaging is the optimal imaging investigation for nearly all lumbar spine lesions.

However, the real questions relate to the indications for and timing of imaging. Few studies have shown that lumbar spine MR imaging improves the patient's quality of life. Dixon asked and answered questions such as: Is MR imaging more useful for the clinician than the patient? Does an experienced clinician need the help of MR imaging in every patient with a back complaint? Or is MR imaging needed only as a road map before likely surgery? Can MR imaging speed up the assessment?

His answers confirmed my reactions as a suffering radiologist (Anyhow, I had an MR examination six months after the fact to satisfy my curiosity.) The opinions of other radiologists attending the session differed a little, depending on their medical environment, reimbursement, referring orthopedists, etc. However, all agreed that a conservative approach is the best ... or as one of them summarized it: I'd rather have a bottle in front of me than a frontal lobotomy.

See you in Vienna next year.

Rinckside, ISSN 2364-3889

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Citation: Rinck PA. From ECR 2003: From EPOS without EROS to L5/S1. Rinckside 2003; 14,1: 1-3.

Researchers must define 'evidence-based'

Peter A. Rinck



There are countless things I am completely ignorant of or that just continue to mystify me: cricket, wonder-bras, public health – the list is endless. For a long time I was also mystified by the terms “evidence-based medicine” and “evidence-based radiology”. They sounded redundant to me, like tautologies such as “wet rain”.

Medicine surely requires practitioners to possess knowledge of the evidence of appropriate diagnoses and therapies. If you lack this knowledge, or if you are unable to acquire it in a special case, you should not practice medicine or radiology. Does the introduction of a “scientific, evidence-based medicine” mean that earlier medicine was without foundation? Were patients previously treated fallaciously by incapable physicians?

I was therefore glad to see a complete session on the topic at a major conference. But at attending that session, the mist of mystery was not dissolved but rather replaced by the fog of boredom. I learned something, though. Evidence-based medicine and radiology are apparently of Canadian descent, and the term is taken to mean keeping one’s practice up to date with an ongoing interest in research and development.

■ The Canadian Association of Radiologists wrote in 2001: “The evidence-based approach was reprinted, consolidated and defined as ‘evidence-based medicine’ (EBM) by physicians at McMaster University [2-4]”. They continued: “Today, the more comprehensive term ‘evidence-based healthcare’ (EBHC) is commonly used because many healthcare disciplines have adopted evidence-based principles and practice. In radiology, however, these developments have received little attention.” [5]

Everything is evidence-based nowadays, from herbal medicine and radiology to dental hygiene, from acupuncture and sports medicine to colon cancer screening.

Did I miss something in medical development during the last ten years? I am always cautious; therefore, for fear not being up to date, I decided to find out ev-

erything I could about evidence-based medicine, evidence-based healthcare, and evidence-based radiology.

What is *Evidence*?

By three methods we may learn wisdom: First, by reflection, which is noblest; second, by imitation, which is easiest; and third by experience, which is the bitterest.

Confucius, 551-479 BC

The motto of medicine should be "ratio plus experience".

Friedrich Hoffmann, physician, 1660-1742

Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

David L. Sackett et al., 1996

What exactly is evidence-based medicine? Professor David Sackett and colleagues at Oxford describe it as follows:

“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research. By individual clinical expertise we mean the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice. Increased expertise is reflected in many ways, but especially in more effective and efficient diagnosis and in the more thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions about their care.

“By best available external clinical evidence we mean clinically relevant research, often from the basic sciences of medicine, but especially from patient centered clinical research into the accuracy and precision of diagnostic tests (including the clinical examination), the power of prognostic markers, and the efficacy and safety of therapeutic, rehabilitative, and preventive regimens. External clinical evidence both invalidates previously accepted diagnostic tests and treatments and replaces them with new ones that are more powerful, more accurate, more efficacious, and safer.” [1]

"This new trend is essentially a mixture of continuing education, individual reading, and outcome studies."

In the United States, Michigan State University's website describes the arguments for evidence-based medicine as follows:

“Taking an evidence-based approach to practice, teaching, and research can help you address some of the limitations of current medical practice. It can help you:

- Stay up to date with the current literature;
- Communicate effectively with consultants;
- Make the best use of other sources of information, such as pharmaceutical representatives and colleagues;
- Make the best use of information from the history, physical examination, and diagnostic testing;
- Avoid common pitfalls of clinical decision-making.” [6]

A similar explanation of evidence-based medicine is given by Dr. Martin Dawes, a lecturer at the University of Oxford. According to him, evidence-based medicine is basically the compilation of the best information available, because physicians have too many patients and are confronted by too many problems, according to Dawes There are too many journals and there is an information overload. [7]

One aim of evidence-based medicine seems to be fighting information overload by training people to collect the right information. It is a way to make people process and digest information into practical knowledge.

I could not find any hard facts on special features of evidence-based medicine, even after browsing the internet and reading a number of publications. One good article clarified my understanding of evidence-based medicine and radiology as a child of the computer age and, basically, a trendy version of continuing education [8].

Where is the Evidence?

Evidence is presented at conferences by trained colleagues; however, experts have different opinions. Books and textbooks age rapidly. Journals do not cover everything, and even if you did have access to a complete selection, you would not have time to read them all. You can follow guidelines, but they may not be transparent. Or you can check the internet and PubMed for the latest news, but do you get what you want, and is the information correct?

Quality control of information posted on the internet seldom exists, and you can easily get a kind of Reader's Digest of evidence. There is no substantiation, no confirmation whether “evidence” presented is accurate or tainted by incompetence or bias. When checking for evidence-based radiology in PubMed, I found just 10 relevant entries among the first 120 listed.

Many scientific publications are “medicine by anecdote”, even, or especially, if it is studies of new drugs. But many of these studies lack real outcome. It is all “marketing evidence”. One randomized trial cannot deliver an answer about a patient's prognosis. One needs proper follow-up studies or systematic reviews of several randomized trials to get this information. One clinical trial might suggest an apparent benefit for patients, but five years later new facts might reveal that there was no real benefit at all.

Evidence-based medicine seems to be a very commercialized subject connected to information exploitation on the web. It also seems to be an educational tool for those physicians and nurses who have grown up and studied without major intellectual challenge: the multiple-choice and click-copy-and-paste generation.

The best solution for pointing out and presenting medical evidence are systematic reviews and synopses of primary and secondary literature, which critically appraise existing practices in diagnosis and therapy. In the evidence-based lingo this is called “re-

search synthesis” or “meta-analysis”. You need excellent people to write these reviews – and usually it is not becoming to write such reviews if you are a well-known scientist or doctor, because it takes a lot of time to collect the relevant material and write it up. People writing such reviews are often unjustly viewed as being past the peak of their career.

Outcome Studies and CME

Evidence-based medicine is a mixture of continuing medical education, individual reading, and outcome studies.

Outcome studies focus on the results of diagnostic or, more often, therapeutic decisions. They address the consequences and effects of medical interference upon the patient, such as morbidity, mortality, and quality of life, rather than looking at instant and defined impacts such as the detection of a lesion or the significance of an antibiotic treatment.

Outcome studies try to determine the long-term consequences for the life of a patient. They are particularly important in radiology.

The tremendous increase of diagnostic examinations during the last twenty years has made it increasingly difficult and challenging to make appropriate decisions about how to interpret tests, how to choose between different tests, and how to determine when imaging is indicated. Outcome studies guide such decisions.

One prominent example of changes in radiology was the abolishment of chest x-rays in asymptomatic patients. The World Health Organization published guidelines some time ago stating that chest x-ray in such patients are of no use [9]. Evidence-based radiology has come to the same conclusion, twenty-five years later.

In other words: If you do not know about, or if you do not practice evidence-based medicine you have not missed an amazing medical breakthrough. The ideas discussed under this heading are positive, and its addition to continuing medical education, reviews, and outcome research is necessary for physicians who want to comply with the best possible quality standards in medicine.

However, the term “evidence-based medicine” is a catchword. To classify it as (the only) scientific

medicine would be, euphemistically described, a terminological inexactitude. It is exploited by researchers, insurance companies, and politicians to protect their own fields of interest and financial advantages without any scientific or even “medically evident” background or benefits for patients. Often it is used to gain money or to stop money-spending, in the case of reimbursement or insurance companies.

Do not fall into the trap of fashionable balderdash.

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Rinckside, ISSN 2364-3889

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Citation: Rinck PA. Researchers must define 'evidence-based' . *2003; 14,2: 5-7.*

