

# Cardiology at Concorde

Specializing in Non-Invasive Cardiology



## Evidence Based Medicine

For the past 25 years, medical education and practice have developed around the concept of using clinical research trials to guide physicians' use of drugs and medical devices. Performed properly, these trials provide the "evidence" doctors need to make valid treatment decisions.

The most rigorous clinical research trials are conducted as patients present themselves for treatment at a clinical center ("prospective trials"). If they accept the terms of the trial, the patients are randomly assigned ("randomized") to an active treatment group that receives the drug being studied or to a placebo group that receives a sugar tablet made to look like the active drug. In this way, the treating physicians are unaware of which treatment group an individual patient is assigned to.

The recruitment phase proceeds until sufficient numbers of patients are included to provide the analytic power to answer to the question being asked. The trial is then closed to further patients. Both groups of patients are seen in clinics on a regular basis over time to record their responses to each therapy. These prospective, randomized, placebo controlled trials have revolutionized clinical practice by providing definitive answers to questions about whether a medication is effective in a specific condition and whether the active drug provokes side effects more frequently than a sugar pill.

Here are the details of one such clinical trial and an explanation of how the trial promoted and enhanced medical practice. The first letters of the words in each trial title is used to name the trial. Referring to a trial by its acronym allows physicians to refer to a whole body of information in "shorthand" so that other medical professionals will grasp the speaker's meaning instantly.

The HOPE trial (Heart Outcomes Prevention Evaluation Study) was published in the year 2000 and compared the effects of a drug called ramipril (Altace®) and Vitamin E to a placebo on the subsequent risk of heart attack, stroke or death in a group of high risk patients, many of whom had already suffered heart attacks, had leg artery disease or diabetes. The study was conducted at 267 hospitals worldwide and included over 9,000 patients. The trial was stopped after the investigators were informed by the Data Safety Monitoring Board that the ramipril treated group suffered about 20% fewer heart attacks, strokes and deaths compared to the placebo group. On the other hand, the data showed that Vitamin E was ineffective in preventing these outcomes. This trial provided the information needed to establish ramipril treatment as effective and safe.

If you are concerned about the patients who got the sugarcoated pill instead of the real drug consider these facts:

- When the trials are designed, the doctors who conduct them do not know whether the active drug will be more effective or more harmful than the placebo.
- Patients are given all the usual medications for their condition. The only difference in treatment between the groups is the drug under study.
- Patients sign a consent form, which stipulates the possible benefits and risks of the trial. At any point in the trial, a patient who suffers a possible drug reaction is withdrawn from the trial.
- The trial goes on only with the consent of the Data Safety Monitoring Board, a group of physicians who serve as referees who watch from the sidelines and total up the results of treatment in each group.
- As soon as there is a statistically apparent difference between the real drug and the sugar pill, the trial is brought to an end.
- Once the trial “code” is broken and the new drug is shown to be beneficial, patients who received the placebo pill are offered treatment with the active drug.

As a result of the HOPE trial, doctors treating these types of patients are now well aware of the benefits of ramipril and other drugs in the same class known as ACE INHIBITORS in promoting fewer heart attacks and strokes as well as preventing the onset of diabetes. On the other hand, the use of Vitamin E in these patients has been discontinued because of the lack of a proven positive effect. Although this particular trial has been completed, there is still a difference of opinion as to how the drug ramipril produced its beneficial effects. This constant re-evaluation of what we think we know makes current medical practice a self-improving enterprise.

Literally hundreds of these placebo-controlled trials are reported in medical journals and at scientific meetings every year. They form the basis for FDA and Medicare approval of new medications and medical devices. As a medical consumer contemplating a new medical or surgical approach, you should ask your physician explain the data that supports the treatment he or she is considering for you and to describe the risks associated with its use.

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