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To the Editors

Methinks the lady doth protest too much, and with hyperbole more suited to an advertising campaign than to scientific reasoning.

Everyone will agree with Dr. Ferencz that prevention is the ultimate goal for congenital heart disease, as emphasized in my article, but in practice prevention has limited applicability. Other than rubella immunization, and the avoidance by pregnant women of cardiac teratogenic drugs like lithium, retinoic acid and alcohol, there is little we can do to prevent most congenital heart disease. That is why I spent about two-thirds of the discussion of the future of pediatric cardiology referring to new molecular and cellular findings that might at some future time improve our ability to prevent these diseases.

Nevertheless, we have to deal with problems that now exist; we do not have the luxury of postponing the treatment of people who have serious cardiac problems just because we cannot yet prevent them. The remainder of the discussion about the future concerned things that are now being done or are on the drawing board. I have difficulty understanding why Dr. Ferencz regards some of these as "nightmarish specters." Why does she regard with horror the notion of improved myocardial protection for procedures now being done? We now put in homografts which give people many years of good health, but sooner or later fail, so that there is every incentive to trying to make them better. We put in conduits to reconstruct right ventricular outflow tracts, but have to change them if they get too small or become occluded. Surely it is useful to the patients and their families for someone to develop a conduit on a stent that can be expanded as the child grows (this is now being tested) so that there will be need for fewer reoperations. Does Dr. Ferencz really believe that saving a baby's life by doing an arterial switch for complete transposition has "no justification based on human values or social responsibilities"?

Advances in human treatment have often been won with great difficulty. Children with leukemia had a terrible prognosis before therapy was started. Then, in the early days, the therapy was painful and often ineffective, and many of us, including me, wondered why we should put people through that misery. Today, however, the results are much improved, even though the

treatment is still unpleasant, and many parents and children are enjoying their lives despite the uncertainties that the future may hold. I doubt if cardiology is any different.

There is a great difference between heroic (and unwarranted) therapy and that therapy that is "high tech" but works well. At present, attempts to save a 400 gm, 24-week gestation fetus lead to pain for all concerned, and almost certainly to a delayed and unpleasant death. Most of us would not condone the attempt. However, the same technology is being used to save the life and health of a 1000g fetus, who will probably lead a normal life. Furthermore, there was a time when those 1000 gm babies did not survive because the necessary research into cardiopulmonary, neurologic, and metabolic function had not been done.

When I wrote about the prospects of fetal cardiac surgery and neonatal xenotransplantation, I was referring to possibilities that might not only save lives in the immediate future, but lead to better and longer quality of life. Thus if it were possible to open up *in utero* an atretic aortic valve so that the left ventricle could develop, or an atretic tricuspid valve so that the right ventricle could develop, then after birth the child could have a two ventricle repair rather than a one ventricle repair or a transplant, and that might confer a great benefit on all the family. Or if fetal or neonatal tolerance to cardiac xenografts became a reality, then a cardiac transplant might lead to a normal healthy life, free from the need for immunosuppression. Obviously, I am assuming that the end result of the technique will be a satisfactory result, and for many of the suggestions that I made this may not be true. The decision to use them or not, however, will need to be made on their value, not whether they are or are not "high tech."

Finally, I would like to assure Dr. Ferencz that, as a practicing pediatric cardiologist, I (and the vast majority of my clinical colleagues) have great empathy with our patients and their parents. I have from time to time advised that therapy should not be started or should be withdrawn when this was clearly in everyone's interest. Most of my clinical colleagues have great humanity and empathy, and use their technical knowledge for the benefit of their patients, and not to "bring about the enactment of a family's worst nightmare..." Unfortunately, sometimes things do turn out badly, but this certainly happens less often today than it used to.

I have gone back to Dr. Chavez's lecture, and nowhere there do I find any disapproval of advances in science. His concern was humanism, by which he meant a broad knowledge of philosophy and the arts; he did not deal with humanitarianism. My interpretation of his words are that he was concerned in the main with narrow specialization and the tendency to favor basic over clinical research. He wrote, when referring to

young doctors training to be specialists in cardiology:

“In almost all of them one notes a passionate eagerness to master the technique rather than to possess themselves of the method, and the cult of the apparatus is more easily developed in them than a passion for scientific ideas.”

Dr. Chavez was not against science, but only its distortion and the lack of vision when applying it to problems. No one could disagree with this attitude, nor did I disagree with it in my article.

It might be instructive to consider technology in fields other than medicine. People against all new technology are often referred to as Luddites, but that is too broad a description. The Luddite rebellion was aimed at destroying the knitting machines and power looms that cost them their jobs, a serious problem in an era without unemployment benefits or job retraining. Nevertheless, that same technology made available to the larger society clothing of a quality and cost that would not have been attainable without the newer methods of production. As another example, a motor vehicle is a source of pollution and can be a weapon of destruction in the hands of a drunk driver, but in the

hands of the driver of an ambulance or fire-engine it can save lives. Almost all technical advances have the potentiality for evil as well as good, and it is up to the users of the technology to recognize this and be discriminating.

I believe that Dr. Ferencz does the scientific community and the patients it serves a disservice when she appears to equate scientific research to inhumane therapy, when she refers, without qualification, to a “nightmarish specter in which one searches in vain for justifications based on human values or social responsibilities.” Surely this does not apply to all therapy for patients with congenital heart disease. No one could dispute her plea for more research into prevention, nor the plea for considering all the social ramifications of our actions, but likewise no one should drop all current research that may improve the lives of our patients in the next few years. Let us not make the best the enemy of the good.

Yours sincerely,

Julien I. E. Hoffman
Professor of Pediatrics
Senior Member, Cardiovascular Research Institute
University of California, San Francisco, CA 94143,
United States of America