

Is High-Tech Medicine Always The Best Option? Some Reflections from My Pluriennial Experience in Diagnostic Imaging

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Abstract

It is a fairly common opinion, in the public at large, but also among a majority of experts in some of the more technological fields of medicine that, like me, work in the Government health system-especially those whose primary occupation consists in making a diagnosis through the use, visualization and elaboration, of acquired radiological images-that the development and application of new techniques of medical imaging, characterized by noninvasiveness, rapidity and sophistication, must always be favorably welcomed. In reality-and this is my personal, experience-based opinion-things are not as smooth and straightforward as they appear at first or are as they are presented in the press. In this brief article I will try to make the point that, the application of technological tools to medical diagnosis, requires a coordinated and thoughtful evaluation of the same to avoid the perilous supremacy of high-tech, that is expensive, subject to overuse and unable, for most part, to meet the real patient's needs and expectations; to prevent medical professionals and medical personnel from becoming less humane; and to reduce unnecessary economical burden to Governments and insurance companies.

In my almost twenty-year practice of medicine, as a staff neuroradiologist in a major government hospital of Italy's capital-not including the years of residency training in both Nuclear Medicine and Diagnostic Radiology, seven of which in the United States-I have been able to experience firsthand the impressive advancement of the technology applied to the field of diagnostic imaging, and to appraise of it, in a critical way, the pros and cons, always having to heart two subjects: the patient and the physician. To speak of the patient is easy and intuitive for anyone, since medicine's ends are to protect both patient's life and health; to speak of the physician, given the same premises, on the contrary, is not so intuitive and would not seem as comprehensible to many or totally meaningless to others, if it were that the physician "grows" in his professions and refines him/herself during his career, also through the use of the tools to his/her disposition. This latter aspect, as far as I understand, is something we are not used to consider unless we are directly and personally involved; but, also in this case, it is not necessarily always so.

If it is true that the application of technology to medical imaging has allowed the investigation and exploration of body organs without recurring to surgical procedures-the "explosion" in the implementation of tools of diagnostic imaging is very much related to their non-invasiveness-their widespread and, often, unnecessary use has represented and still represents a major burden to public health systems already aggravated by exaggerated expenses due to a variety of different factors. The velocity with which our body is scanned by newer generation CAT machines should not be further improved-although it is regularly done-because it conflicts with the need to use proper care-and therefore a certain amount of time, that has not changed over the years-towards patients in severe conditions, such as those, for example, in intensive care units or major trauma patients brought to the emergency room. Therefore, there is a time constraint that should be taken into consideration by medical imaging companies, concerned more about reducing scanner acquisition time and processing of the radiological examination-in order to facilitate the patient being examined, at least theoretically-by technological upgrading, than a real concern for the medical professionals and personnel. Together with a reduction of "machine time", the production and elaboration of an ever-increasing number of images-and by so I intend the number of slices per exam (thinner slices means, in general, better details), visualized in at least three axis or plans, and the addition of curves or graphs, when considered necessary-has made the "interpretation"

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work by the radiologists, more complex, lengthy and sometimes very tiring. Not always, in fact, a radiological exam with more anatomical details is a better exam, because a correct diagnosis depends on many variables and should never be based only on technology performance. It can happen-and it does happen-that the sense of "omnipotence" conferred by ultra-sophisticated, almost "seductive" tools of imaging, may prevent the specialist from consulting readily with other colleagues or postpone a useful patient's clinical examination to come to a correct diagnosis. Useful time may be lost in viewing tons of images, in the false assumption that high-tech medicine is "the best medicine". Although noninvasiveness "per se" is a valuable adjunct to any diagnostic modality, unfortunately-the other side of the coin-it has led to an almost universal overuse, overuse that is difficult to reverse also because of a patients' acquired "habit" to easy to do studies. I find it difficult even to predict the introduction of appropriate guidelines in this respect, at least in the near future, to tackle this problem that has many important implications. Physicians and medical personnel are so used to the ease with which diagnostic images are acquired and elaborated, clinicians are so anxious to find rapid confirmations to their first clinical impressions that, following the widespread use of high-tech medicine, patients' management has so deeply changed over the years, that has not given us sufficient time to fully understand the consequences. And reflect on them. What has been lost, to my opinion, is a rational use of all the tools available to the medical profession-and not necessarily high-tech -, the ability to thoughtfully evaluate each single clinical case, allowing for the right amount of time, in order to link in a meaningful way the clinical history, symptoms, modalities of presentations, etc., to favor, instead, the speed and facility of new technological instruments of diagnosis. It is a real loss of human and professional capacities, to my understanding, that constantly threatens the medical profession but, at the same time, goes vastly unrecognized. We could define it as a form of abjure to human reasoning, through the adoption of a "mechanical" or "instrumental" type of thought. We tend to "follow" the workings of the instruments we ourselves create, in some ways. Also patients' care is negatively affected, at the end.

To me, also if we consider the positive aspects of technology applied to diagnostic imaging, this is not to be called progress, in a literary sense! I do not have and cannot offer solutions, at this point in time; I certainly try to discuss what appears to me as an important ethical challenge with my colleagues, but I usually find indifference or a scarce support. Maybe my studies in Bioethics and, more recently, in Theology, have expanded my field of view and deepened my sensitivity, helping me to attribute a more articulated and profound sense of purpose to the medical profession. To conclude I would like to cite an interesting thought on the dangers of globalization that shares, with the subject of my work, an interesting but undervalued aspect.

"The globalization, the peril of an ideological drift in virtue of which are the immanent processes to one determined economic and scientific-technological logic to constitute, the same, the meaning of the globalization and, after all, its conclusive objective. The simple mean, in other terms, too often ends up assuming the meaning of the end".

(Piero Coda, Dalla Trinità, l'avvento di Dio tra storia e profezia, Città Nuova Editrice, 2011, Istituto Universitario Sophia, p. 60-61, personal translation).

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