Bioethics and Cardiovascular Imaging

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I learned the advanced foundations – for the time – of the Cardiology specialty at the Services of two late brilliant masters: Arthur de Carvalho Azevedo (1916-2000), in the Graduate Program of Cardiology at Pontifícia Universidade Católica do Rio de Janeiro, and Luiz Venere Décourt (1911-2007), at the Cardiology Specialization Course at Segunda Clínica Médica da Faculdade de Medicina da Universidade de São Paulo. It was a time when masters set up schools with their styles of applying and reverberating the specialty and were seen as examples of doctors, attracting idealistic young people from all around Brazil, many of whom were responsible for implementing pioneering services in their return to their native lands, which were the hubs of the current international qualification of Cardiology, as it is observed in the four corners of Brazil. Imaging scans were used as complementary to clinical practice, and the cardiologists were qualified to interpret them.

Bioethics was born a few years later, with North American Van Rensselaer Potter (1911-2001), from a concern about the repercussion of the progress made in the health sector on the dignity of the human beings vulnerable to the disease. It is fascinating to remember that much of what Bioethics represents today for the balance in the application of science and humanism in Cardiology was already somewhat rooted in clinical clairvoyance and respect for the ailing Carvalho Azevedo and Décourt. Both shared the value of rigor in the use of technical-scientific knowledge and skill as an indispensable factor of appreciation for the patient's wellbeing, at a time when paternalism prevailed and there was virtually no active participation of the patient in the decision-making process. They were set in the human context of traditional wisdom, in which the application of Medicine requires the physician to firmly consider the benefit/harm ratio of the methods, due to the absence of zero iatrogeny; scientific truths are temporary to a large extent; and recognized certainties need to raise the doctor's open-mindedness for the unknown and the unpredictable vis-à-vis the patients' individualities.

The so-called "principialist" Bioethics was organized into four principles. The principle of beneficence states that only those methods validated as useful and effective for the clinical circumstance should only be applied, which in evidence-based medicine represents a good measure of effect and probability of certainty. The principle of non-maleficence says, since Hippocrates, that harm to the patient should be avoided and is connected to the patient's safety – for example, the circumstantial non-application of a conceptually beneficial method by virtue of comorbidities. The principle of autonomy refers to the free will of both the patient and the physician, to meet health needs, through patient consent and the physician's awareness assessment. According to the principle of equity, all citizens have the same health rights.

As predicted by Potter, Medicine has evolved tremendously and, for some decades, every progress has required attention from Bioethics, because of the inevitable association with certain predicted circumstances of causing some types of harm to people – and also the unpredicted ones, which materialize as the method becomes routine. A great ethical tension usually arises from the interface between the classic and the innovation, either by the radical substitution of the method, or by the improvement, or, by only the supplementation, which directly concerns the issues that involve the use of cardiovascular imaging. Therefore, any validated methodological innovation, while representing some kind of benefit, is not exempt from causing harm, which may even determine the cancellation of authorization to be used because of the real-world effects of the market phase – as we see with drugs.

My prolonged experience with this interaction between tradition and empiricism through decades of continuous specialization in the university environment with which I have always been involved helped to reinforce the concept that the gradual changes to the state of the art require ethical adjustments in general, as well as individual commitment to the morality of professional behavior. In this context, the bedside currently witnesses a challenge to the appreciation of cardiovascular imaging over clinical tradition.

At the time, the few technological resources available in the industry – first half of the 20th century, for example – each cardiologist had to rely on the personal technical resources represented by the senses trained for the profession (inspection, palpation and hearing) and the mind (clinical reasoning). Electrocardiographic tracing, chest X-ray scan and contrasting scenes of cardiac catheterization were satisfied with the indisputable classification of complementary examination.

The doctrine that "clinic is sovereign" was the best expression of good Cardiology, even though behavioral decisions were made with prime cardiovascular imaging information – often even dissociated from the clinical expression, for example, in the field coronary artery diseases.

Back then there was already some new understanding of the rationale of observable signs on physical examination. The signs – especially those obtained by palpation, percussion and auscultation – represent a deduction of what occurs of abnormal in organs of the human body, impossible to be seen by inspection. The construction of this knowledge,

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the clinical propedeutics, was essentially made step by step by taking careful notes of the physical examination before viewing the organs at the necropsy, many of which became pathognomonic. One step in the direction of the primacy of cardiovascular imaging over the clinical examination was disregarding percussion as a method for estimating the cardiac area, replaced by the chest X-ray scan, which allowed the human body to be scanned and collect an image analogous to that of necropsy.

From the second half of the 20th century, the expansion of cardiovascular imaging in terms of new methods and accuracy provided quality to non-invasive anatomical viewing, as well as a genuine basis for functional correlations. Thus, if the clinical examination was sovereign, cardiovascular imaging acquired the function of prime minister. The growing enthusiasm generated a utilitarian association of images: that of the good cardiologist making use of image-acquisition machines. Bioethics is concerned with excesses that overturn traditions – they have historically never been welcomed in the health community.

In fact, the view of bedside Bioethics to the clinical Bioethics that we practice, given the growing diversity of current Medicine resources and the primacy of respect for patient desires, preferences, goals and values, prefers to state that today's bedside coexists with three sovereignties: the clinic, the images and the patient – which is linked to the principle of autonomy, according to which capable patients have every right to actively participate in decision-making regarding their health.

Each sovereignty has its timing in the management of the case, and all are interconnected. In other words, a competition atmosphere should not prevail, but one of sharing usefulness and effectiveness. In the course of a health service, clinical examination is at times superior, and cardiovascular imaging it at times essential, and sometimes the patient, or legal guardian or someone recommended needs to give consent – or not. The exchange overcomes barriers and goes beyond borders always in favor of excellence in service. Health institution and health system should ideally be together in the use of the cardiovascular imaging for diagnostic and therapeutic purposes, according to certain criteria, for example, by clinical guidelines prepared by Cardiology societies. However, bedside Bioethics states that recommendations are not handcuffs, but compasses, because of the need for security adjustments, mainly in terms of the individualities of each patient – for example, the impact of comorbidities of each one on the intentions of benefit.

Bedside Bioethics disapproves the lack of respect for timings that are validated and recommended for achieving excellence in care. Obviously, elective emergency, urgency and emergency procedures have peculiar timings, either in diagnostic definition or in the therapeutic institution, that is, the execution of triple sovereignty beyond the protocol aspects cannot do without the cardiologist's common sense towards the clinical condition. Faced with an imminent risk of death, our current Code of Medical Ethics places the decision in the hands of the physician, without the need to obtain the patient's free and informed consent.

When it comes to going too far, bedside Bioethics does not welcome a degree of magnetism with imaging, something like a cult to this source of information, faith in its validity for clinical support, which provokes a position of uselessness in the application of the other methods that the cardiologist could use to meet the patient's health needs. There is some pressure from patients for conducting cardiovascular imaging scans in this age of influence of Dr. Google, but the factor of (lack) of time often forces the physician to rush to get the image. It is a utilitarian behavior that believes that an image speaks more than a thousand signs of physical propedeutics, but which, then, will bring difficulties of reasoning of therapeutic decision, because of lack of well-conducted and well-thought anamnesis and physical examination, with information that the machines they cannot provide – yet. Imaging scans are not an initial diagnostic sieve. Sovereignties must be respected in their times of interconnection. In short, we cannot admit a representation of a cardiologist that can only prescribe imaging tests and that can only read reports, delegating their clinical duties to machines.

It is a biased context, in which the image specialist greatly contributes to clarification on the constituents of the case, but not necessarily to an accurate resolution of the case. It is frustrating. Therefore, it is essential that the deserved sovereignty of the cardiovascular imaging be exercised to complement the identification of diagnostic hypotheses by the sovereignty of the clinical practice. My experience leaves no doubt that when a clinician and an image specialist talk about the case, something usually changes, either in the interpretation of the image or in the clinical reasoning, ruling out false positives and false negatives – impossible to be appreciated without dialogue. Unfortunately, lack of time – we do not own time, time own us – and the effects of the distance from the places where the professionals work determine more juxtaposed monologues than dialogues. It is justified, therefore, the interdisciplinarity between the clinical practice being sovereign and the cardiovascular image being sovereign which, has lately been occurring in the formation of teams for more complex decision-making.

I stress out these statements by quoting Art. 1 of the current Code of Medical Ethics: "The physician is prohibited from causing harm to the patient, either by action or omission that can be characterized as malpractice, recklessness or negligence. Sole Paragraph. Medical responsibility is always personal and cannot be assumed." I understand that image specialists work by using all of their expertise in acquiring and interpreting the image and are at greater risk due to prudence and diligence. In this last aspect, an example is the diligence in immediately informing the cardiologist of the test results in situations that require immediate action. Regarding prudence, each imaging specialist must define for themselves not only how much they should respond to the anxious patient's questions about the test results, but also their attitude towards the contents of the clarification about consent.

The patient's consent to have the cardiovascular imaging test done must be obtained by the requesting physician – that is, they must adequately clarify the objectives, the advantages and the risk of adversity, for example, from the use of radiographic contrast. The imaging specialist must determine, before doing the scan, whether the clarifications

were actually offered (Art. 22. of the current Code of Medical Ethics: "The physician is prohibited from failing to obtain consent from the patient or their legal representative after clarifying the procedure to be performed, except in case of imminent risk of death"). In addition, the test request date is not always recent and much may have changed in the clinical and laboratory exams. The definition that a test scheduled means a test to be done without observing the principle of non-maleficence is very complex.

A delicate aspect from an ethical point of view arises when the imaging specialist does not think that the test should have been requested. The thought of avoiding harm or unnecessary risk to the patient usually clashes with the Doctor's Law II in the current Code of Medical Ethics: "It is the physician's right to recommend the appropriate procedure for the patient, in accordance with the scientifically recognized practices and pursuant to the current legislation." Each case must be judiciously appreciated by the imaging specialist for the sake of prudence.

One branch of this ethical subtlety is the so-called Defensive Medicine, in which imaging tests are requested only to document something that has already been well assured clinically. As if it were a diagnostic quality certificate for the biased assumption that an award will be more valuable in a court of law than the very notes on the patient's medical record in case of any future allegation of negligence. It falls within the issue of allocation of funds – always finite – in which bedside Bioethics warns about the inconveniences of waste.

Current cardiovascular imaging is sophisticated, highly informative and decisive. It has many benefits of health care excellence, but the legitimacy of the uncontested sovereignty of cardiovascular imaging cannot dispense with the tradition of clinical sovereignty and the social conquest of patient's consent. The wisdom of William Bart Osler (1849-1919) is still applicable (it couldn't apply better!): "Never forget that your patient is not pneumonia, but a pneumonic human."