

Methodology of Research and Scientific Communication: Other Topics to Remember...

To the Editor

I have read with great interest the article published in the previous issue of the Argentine Journal of Cardiology, written by Dr. Ricardo Esper, (1) for whom I have the highest regard.

This brief letter does not aim at arguing about the importance of a complete physical examination, the invaluable importance of correct semiology and anamnesis, or their implications in medical decision making. I welcome that prestigious professionals like Dr. Esper make efforts to remind (us) younger professionals of the importance of semiology in daily practice.

However, I was surprised by the fact that in this provoking text, whose valid intention is to remind us of how and why we must perform a proper physical examination, some errors and omissions have slipped by regarding how to perform a proper clinical study, ask a suitable scientific question and report the results.

We must teach how to perform a complete and detailed physical examination, and also how to present, perform and report the results of our research. Dr. Esper's paper starts with a brief introduction of the problem, which is not validated by any bibliographic reference (the paper has no references), and one wonders: Has it been evaluated before? Was this problem detected in the past? Has anyone tried to answer these questions before?

According to what is reported in the Material and Methods section, patients were asked whether the physician had palpated their peripheral pulses, then they had their physical examination and were interrogated again. It should be pointed out that patients had no memory disorders. It is not stated what method was used to confirm their memory condition, nor the average time between the previous examination (possibly performed by another physician in another office) and the current one. The number of patients that should be included in the study to detect a significant difference between those 'previously' and 'not previously' examined was not raised in this section either. Again, with no available prior bibliographic reference, it is difficult to know a priori whether this difference could be quantified. The Results section shows that during interrogation, a large number of patients reported that their pulses had not been examined, but after physical examination, another significant number of patients reported that their pulses had been examined. One is left wondering, since there are no references in the Discussion section on the validity of cross-questioning and its placebo effect. Since there was a single operator, with an interest in demonstrating that the examination is seldom performed, one might suspect there is a bias in the way of cross-questioning, influencing the final reply. I do not mean to say that this has hap-

pened but that a subsection called Study Limitations for all these speculations should have been included in the text.

The manuscript discussion begins by reflecting on the administrative aspects of our daily consultations, and how they impact on our medical practice. I totally agree with the concepts expressed by Dr. Esper; however, his study –referred to as a 'survey', when it is in fact a prospective study– did not intend to assess such impact, but the percentage of patients whose peripheral pulse was not examined. The same happens with the second consideration about the impact the industry has on the decisions of the young physician. It could give rise to a Journal editorial, which one would read with great pleasure; yet, those aspects were not analyzed in Dr. Esper's study and associated with his work, they appear as merely speculative.

I think Dr. Esper has fully achieved his goal: he has managed to call my attention (and I assume the attention of many others) on a topic that is not my specialty. However, I dare use his 'provoking' approach to point out that this same emphasis should be dedicated to teaching Research Methodology.

As a final thought, the conclusions of a study should answer the questions posed. In this case, both conclusions are –true and valid– reflections rather than conclusions, and they clearly do not answer the original question.

I join Dr. Esper's call (1) to exert pressure on the undergraduate and postgraduate training systems to consider these crucial issues: precision in teaching physical examination and, why not, precision in the performance and communication of scientific studies.

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REFERENCES

1. Esper RJ. Semiology... So Easily Forgettable. *Rev Argent Cardiol* 2012;80:468-9. <http://dx.doi.org/10.7775/rac.v80.i6.1872>.

Authors' response

Dear Dr. Adrián Baranchuk,

I will take the liberty of answering your excellent observation with some familiarity, given our mutual acquaintance of many years, and please, overlook the complete lack of scientific seriousness these issues demand.

Thank you for having read my modest presentation. I am proud that scientific personalities as yourself have devoted their precious time to analyze the manuscript in depth, and even more doing it from abroad. I would like to express that I totally agree with your scientific and pertinent remarks which contribute to improve the presentation. But let me explain to you why I made so many mistakes.

This modest survey – which I´m uncertain should be considered a scientific research – started after having examined some hypertensive patients who had coarctation of the aorta. Actually, it was conducted to collect arguments for the Cardiovascular Semiology course of the Cardiology career, in order to reinforce the importance of cardiac physical examination. The survey was sent to the Director of the Argentine Journal of Cardiology to know if it deserved its publication in the Journal blog. Good luck and good will from the editorial referees made it possible to publish the survey in the Medical Education section, and not as a research work.

As the introduction to the article explains, the target of this survey was to evaluate the percentage of physicians who palpate peripheral pulses of the lower extremities in hypertensive patients during their routine practice, and not to teach how to perform a proper clinical work, as you mention. There are no bibliographic references because I was unable to find in the available literature any reference related to this modest survey.

I agree with you regarding all the methodological flaws about how to ask, why cross-question, etc., but nonetheless, the figures are conclusive leaving no room for doubt. Setting aside the differences, and not attempting to compare myself with him, I am reminded of Jenner: had he followed your concerns, he would have never discovered the vaccine, but the figures of his results were more than eloquent to assert a reality. Moreover, common sense leads to accepting this reality of the incomplete physical examination.

Also, it is very interesting to consider what is missing in the presentation, but do not forget that this is a modest survey aimed at alerting the general practitioner. Please, do not make that mistake in your scientific presentations, particularly when you send them to first-line journals, and do not feel intimidated when asked to abridge your manuscript by less than half because the space available is not enough for a long presentation.

I am interested in scientific rigor as much as you suppose I should be. I have approached cardiac physical examination for over fifty years of teaching in universities and scientific societies, (1-4) without neglecting the teaching quality of scientific research methodology. Proof of that is one of my books about the subject, which was edited in 2008 and distributed free of charge during the World Congress of Cardiology in Buenos Aires, (5) where several prominent researchers, including Salim Yusuf have written. I will try to send you a copy of this book, but you can also check the website homepage: www.atero-esclerosis.com.ar.

Thank you for your contribution.

With my highest consideration,

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REFERENCES

1. Esper RJ, Madoery RJ. *Progresos en Auscultación y Fonomecanocardiografía*. Buenos Aires: López Libreros Editores; 1974.
2. Bidoggia H, Maciel J, Esper RJ. *Aparato Cardiovascular*. En: Sanguinetti L, editor. *Semiología, Semiotécnica y Clínica Propedéutica*. Buenos Aires: López Libreros Editores; 1975. p. 192-372.
3. Esper RJ, Madoery RJ. *El Examen Físico Cardiovascular*. Buenos Aires: Promedicina; 1978.
4. Esper RJ, Suárez LD. *Cardiología*. En: Esper RJ, Mazzei JA, editores. *Medicina. Semiología, Patología y Clínica*. Buenos Aires: El Ateneo; 1992.
5. Esper RJ, Machado RA. *La Investigación en Medicina. Bases Teóricas y Prácticas. Elementos de Bioestadística*. Buenos Aires: Prensa Médica Argentina; 2008.

Rev Argent Cardiol 2013;81:70-1. <http://dx.doi.org/10.7775/rac.v81.i1.2160>

SEE RELATED CONTENT:

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Corrected QT Interval during Acute Cardiac Ischemia: a Useful Tool in Future Risk Scores.

To the Editor

Llois et al (1) have suggested that 12-lead electrocardiogram (ECG) is a first-line, essential tool to assess patients with non-ST segment elevation acute coronary syndrome (NSTEACS) and to detect presence –or absence– of variables with prognostic value. The studied ECG variable is the corrected QT interval.

The mechanisms responsible for prolonged QT interval in patients with acute myocardial infarction are controversial, and are probably related to the electrical heterogeneity of the ventricular myocardium, which is made up of three types of cells that have variable electrophysiological properties. The mid-myocardium M-cells have significantly longer action potential duration than in the epicardium and endocardium, coinciding with the end of the T-wave and presenting electrotonic coupling with the adjacent layers. (2) After an injury, as in acute myocardial infarction, uncoupling of M cells from the adjacent cell layers eliminates these electrotonic influences and allows the expression of the intrinsic properties of M cells, which are revealed in the ECG as QT interval prolongation. (3) Lysophosphatidylcholine, a product of ischemia-induced phospholipid catabolism, has been related to sodium channel kinetic disorders, resulting in non-inactivation of this ion current, and hence, in prolongation of repolarization. (4)

In his work, Llois et al (1) find a positive correlation between troponin levels and the corrected QT interval, which is then considered as an independent predictor of major clinical events at 30 days follow-up. Despite the study limitations admitted by the authors, we wish to highlight these results in endocardial ischemia.

Another study (5) that assessed epicardial ischemia, an acute coronary syndrome with ST-segment elevation, showed more severe ventricular arrhythmias during acute ischemia and the occurrence of a

new acute coronary syndrome during follow-up of patients with prolonged corrected QT interval.

The outcomes presented by Llois et al, (1) together with the electrophysiology here explained, indicate that ischemic injury of adjacent layers to myocardial cells will allow M-cells longer action potential duration to become predominant, prolonging the heterogeneous repolarization.

The small number of patients included in these studies (1, 5) limits the possibility of considering prolonged corrected QT interval as a risk predictor in acute cardiac ischemia. However, understanding the electrophysiological phenomena allows us to share the authors' view described in this article, (1) when they point out their confidence in considering corrected QT interval as a useful and efficient tool for NSTEMI/ACS prognostic stratification. Hence, its inclusion in future risk scales should be considered.

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REFERENCES

1. Llois SC, Gadaleta FL, Sinisi VA, Avanzas P, Kaski JC. Prognosis Value of Corrected QT Interval and its Correlation with Cardiac Troponin T in Non-ST-Elevation Acute Coronary Syndrome. *Rev Argent Cardiol* 2012; 80:432-7 <http://dx.doi.org/10.7775/rac.v80.i6.606>.
2. Patel C, Burke JF, Patel H, Gupta P, Kowey PR, Antzelevitch C, Gan-Xin Y. Is there a significant transmural gradient in repolarization time in the intact heart? Cellular basis of the T wave: a century of controversy. *Circ Arrhythm Electrophysiol* 2009;2:80-8. <http://doi.org/cxgqrk>.
3. Anyukhovskiy EP, Sosunov EA, Rosen MR. Regional differences in electrophysiological properties of epicardium, midmyocardium, and endocardium: in vitro and in vivo correlations. *Circulation* 1996;94:1981-8. <http://doi.org/khn>.
4. Undrovinas AI, Fleidervish IA, Makielski JC. Inward sodium current at resting potentials in single cardiac myocytes induced by the ischemic metabolite lysophosphatidylcholine. *Circ Res* 1992;71:1231-41. <http://doi.org/cxgqrk>.
5. Rodríguez González F, Chávez González E, Machín Cabrera WJ, Reyes Hernández LM, González Ferrer V. Arritmias ventriculares y nuevo síndrome coronario agudo en pacientes con infarto y dispersión del intervalo QT prolongado. *CorSalud* 2013;5:101-7. [citado 20 Ene 2013]: Disponible en: www.corsalud.sld.cu/pdf/2013/v5n1a13/es/sca-qtlargo.pdf.

Authors' response

We have carefully read the letter sent by Dr. Elibet Chávez González et al and we appreciate his comments on our recently published work. (1)

Our research group began to study this ECG variable in 1995 and published the first scientific work on the prognostic value of corrected QT interval (QTc) prolongation in unstable angina in 2003. (2) David Kenigsberg et al's finding published in 2007, shows that QTc interval prolongation is the first electrocardiographic sign of early transmural ischemia present in 100% of cases studied, confirming our observations

regarding the importance of routinely measuring QTc interval in patients with non-ST segment elevation acute coronary syndrome (NSTEMI/ACS). In addition, it stimulated future publications, the latest being a review on the prognostic and diagnostic value of QTc interval prolongation in the different presentations of ischemic heart disease. (3-5)

It is noteworthy that other researchers have studied this topic, and their conclusions are in line with ours. (6-8)

Regarding the article mentioned in the letter to the editors, it is interesting to point out that the authors not only describe higher risk of arrhythmia in patients with acute coronary syndrome and prolonged QT interval dispersion, as has been previously described, but also greater incidence of new acute ischemic events in short-term follow-up. (9-11)

Finally, as stated in the introduction of our work, the purpose of the study was to evaluate the correlation between QTc interval and cardiac troponin T in NSTEMI/ACS. Results showed a statistically significant correlation and an independent predictive value of QTc-max ≥ 0.458 s to detect major clinical events in short-term follow-up. Our confidence to include QTc interval measurement in future scales for risk stratification in NSTEMI/ACS patients is based on the evidence we have gathered throughout these years. We are pleased to learn from this letter to the editor that other researchers share our view.

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REFERENCES

1. Llois SC, Gadaleta FL, Sinisi VA, Avanzas P, Kaski JC. Prognosis Value of Corrected QT Interval and its Correlation with Cardiac Troponin T in Non-ST-Elevation Acute Coronary Syndrome. *Rev Argent Cardiol* 2012; 80:432-7 <http://dx.doi.org/10.7775/rac.v80.i6.606>.
2. Gadaleta FL, Llois SC, Lapuente AR, Batchvarov VN, Kaski JC. Prognostic value of corrected QT-interval prolongation in patients with unstable angina pectoris. *Am J Cardiol* 2003;92:203-5. <http://doi.org/bg98qj>.
3. Kenigsberg DN, Sanjaya K, Kowalski M, Krishnan SC. Prolongation of the QTc interval is seen uniformly during early transmural ischemia. *J Am Coll Cardiol* 2007;49:1299-305. <http://doi.org/brfzrn>.
4. Gadaleta FL, Llois SC, Sinisi VA, Quiles J, Avanzas P, Kaski JC. Prolongación del intervalo QT corregido: nuevo predictor de riesgo cardiovascular en el síndrome coronario agudo sin elevación del ST. *Rev Esp Cardiol* 2008;61:572-8. <http://doi.org/bwfnkv>.
5. Gadaleta FL, Llois SC, Kaski JC. Corrected QT interval: a prognostic marker in patients with non-ST segment elevation acute coronary syndrome? *Trends Cardiovasc Med* 2011;21:129-35. <http://doi.org/kjg>.
6. Döven O, Ozdol C, Sayin T, Oral D. QT interval dispersion: non invasive marker of ischemic injury in patients with unstable angina pectoris? *Jpn Heart J* 2000;41:597-603. <http://doi.org/dptgr2>.
7. Rukshin V, Monakier D, Olshtain-Pops K, Balkin J, Tzivoni D. QT interval in patients with unstable angina and non-Q wave myocardial infarction. *Ann Noninvasive Electrocardiol* 2002;7:343-8. <http://doi.org/dbhbd6>

8. Jiménez-Candil J, González IC, González Matas JM, Albarrán C, Pabón P, Morínigo JL, et al. Short- and long-term prognostic value of the corrected QT interval in the non-ST-elevation acute coronary syndrome. *J Electrocardiol* 2007;40:180-7. <http://doi.org/e2c79v>

9. Rodríguez González F, Chávez González E, Machín Cabrera WJ, Reyes Hernández LM, González Ferrer V. Arritmias ventriculares y nuevo síndrome coronario agudo en pacientes con infarto y dispersión del intervalo QT prolongado. *CorSalud* 2013;5(1):101-7. [citado 20 Ene 2013]. Disponible en: www.corsalud.sld.cu/pdf/2013/v5n1a13/es/sca-qtlargo.pdf

10. Schwartz PJ, Wolf S. QT interval prolongation as predictor of sudden death in patients with myocardial infarction. *Circulation* 1978;57:1074-7. <http://doi.org/kjif>

11. Zareba W, Moss AJ, Le Cessie S. Dispersion of ventricular repolarization and arrhythmic cardiac death in coronary artery disease. *Am J Cardiol* 1994;74:550-3. <http://doi.org/b8zcg>

Rev Argent Cardiol 2013;81: 71-3. <http://dx.doi.org/10.7775/rac.v81.i1.2161>

SEE RELATED CONTENT:

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Pathophysiology Cannot Be Ignored in Cardiology Training Programs

To the Editor

We have read with great interest the article “Semiology... So Easily Forgettable,” by Dr. Ricardo J. Esper. (1) We agree with the author that unfortunately semiology is being gradually overlooked and replaced by technology, while the latter should only support physical examination and clinical reasoning. We also agree that, for different reasons, the time for medical consultation has been reduced to such a limit that renders the performance of a proper physical examination almost impossible. Perhaps it also forces physicians – particularly young professionals – to ask for not solidly grounded additional tests, as a means to ensure diagnosis and avoid the “industry” of malpractice suits.

However, we do not agree with him on his argument about postgraduate university education. Mainly when he says that “The pathophysiological mechanisms most recently published in medical journals are frequently discussed in the theoretical classes taught at postgraduate courses in Cardiology or Hypertension by different local universities. Most of these reports are currently not completely accepted or have limited usefulness for daily medical practice.”

Almost all the schools of Medicine in Argentina acknowledge that, in general, the physician’s profile and specifically, the cardiologist’s training are absolutely assistance-oriented and that their main function is to treat patients, and not necessarily to publish scientific studies. However, suffice it here to remember the contributions of outstanding cardiologists-researchers as Dr. Pedro Cossio, Dr. Alberto Taquini, Dr. Mauricio Rosenbaum and many other masters of Argentine cardiology, who have left us the legacy of encouraging research and teaching as an important strategy to optimize the training of young cardiologists. Closer

in time, Dr. Carlos Bertolasi’s contributions on the pathophysiological approach to understand the clinical aspects of heart disease with his definition of infarction “with time and with no time” (2) undoubtedly sustain that pathophysiology is the rational basis to comprehend clinical phenomena. However, two studies published in the *New England Journal of Medicine* (3, 4) analyzing the medical care-teaching-research relationship in detail concluded that patients admitted to research and teaching hospitals show better outcomes, though this does not imply –as Dr. Esper points out– that it can be applied to the few physicians devoted to doing research.

In addition, the Argentine Society of Cardiology works hard to improve young cardiologists’ training through its Congress, postgraduate courses, and scholarships to perform basic and clinical research in cardiology, thus providing them with the opportunity of approaching the scientific method.

Anecdotally, Dr. Federico Leloir, illustrating the importance of the scientific method, commented the following: “There were people jumping off a bridge into a lake, and many others trying to save them by jumping after them, but there was someone watching what was happening from one end of that bridge. Another person asks him: Aren’t you going to help them? The answer was: I’m trying to find out why they are throwing themselves into the water in order to prevent it.”

CONEAU resolution 1314, (5) which regulates the quality of medical education in Argentina also states that “Scientific thought and/or scientific attitude allows using critical thinking, clinical reasoning, evidence-based medicine and scientific research methodology in the management of information and medical and health care approach; seeking information from reliable sources and critically analyzing scientific literature; planning and recommending additional studies, taking into account the sensitivity, specificity, positive and negative predictive values of performed tests; interpreting and prioritizing the data obtained to reformulate diagnostic hypotheses; as well as analyzing the cost-benefit of the different diagnostic and therapeutic practices.”

Therefore we believe we have given enough evidence to consider that pathophysiology should not be considered of lower rank in both graduate and postgraduate medical education. However, it implies recognizing that pathophysiology does not provide “magic solutions” and, as specified by Dr. Esper, some research studies still have limited utility for the medical practitioner, perhaps because the knowledge of diseases we currently have is not broad enough to explain all the still unsolved medical issues. We do not believe that pathophysiological knowledge –as Dr. Esper points out– is exclusive to those few who “...will end up doing basic research...” on the contrary, it should be a strong complement to training medical residents and in all postgraduate courses as proclaimed by the

great names of the Argentine cardiology mentioned at the beginning of this letter.

This discrepancy could be the result of not having clear educational goals for training specialists and, therefore, a suitable plan regarding content selection and teaching-and learning strategies.

Finally, Dr. Esper mentions the important limitations of large medical trials to assess a therapy. We fully agree on this point about the problems that come with large clinical trials when they are not conducted by the right professionals, but the detailed analysis of this issue is a matter of future discussion.

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REFERENCES

1. Esper RJ. Semiology... So Easily Forgettable. *Rev Argent Cardiol* 2012;80:468-9. <http://dx.doi.org/10.7775/rac.v80.i6.1872>
2. Riccitelli MA, Nul DR, Sarubbi AL, Ramos A, Bertolasi CA. The clinical presentation of acute myocardial infarction predicts the severity of the lesion in the infarct-related artery. *Eur Heart J* 1991;12:210-3.
3. Chen J, Radford MJ, Wang Y, Marciniak TA, Krumholz HM. Do "America's Best Hospitals" perform better for acute myocardial infarction? *N Engl J Med* 1999;340:286-92. <http://doi.org/c2t8fc>
4. Taylor DH, Whellan DJ, Sloan FA. Effects of admission to a teaching hospital on the cost and quality of care medicare beneficiaries. *N Engl J Med* 1999;340:293-9. <http://doi.org/cp7rsp>
5. <http://www.coneau.gov.ar/archivos/1417.pdf>

Author's response

Dear Dr. Martín Donato and Dr. Ricardo J. Gelpi, Thank you very much for your comments and your time. I truly appreciate that such eminent scientists have devoted their precious time to read just a modest survey, whose main goal was to gather suitable arguments for the Cardiovascular Semiology classes in the Cardiology career, in order to persuade about the importance of cardiac physical examination.

It is an honor that you agree with almost everything that was presented. Once again, thank you for your letter, as I now have the opportunity of a new column in our prestigious Argentine Journal of Cardiology to express my feelings on a subject as precious to me as is medical education. From my humble point of view, physicians must perform their work in five areas:

1. Medical care, to use knowledge for the benefit of others.
2. Research, to acquire new knowledge, because in science to stand still is to go backwards.
3. Education, to pass on knowledge to future generations.
4. Scientific societies, the proper setting to discuss knowledge and to share experiences.
5. Humanities, to better understand our patients and colleagues.

Therefore, we also share our points of view regard-

ing teaching. However, I have the impression that you did not understand the sense I wanted to give to the paragraph you are questioning:

"The pathophysiological mechanisms most recently published in medical journals are frequently discussed in the theoretical classes given at postgraduate courses in Cardiology or Hypertension by different local universities. Most of these reports are currently not completely accepted or have limited usefulness for daily medical practice."

And I reaffirm what I have said, because my purpose is to point out that in more than one class, the teacher or lecturer refers to the last protein which influences a number of reactions, a finding that has not been fully tested yet, and fails to explain that in most cases palpation of posterior tibial or pedal pulses rules out intermittent claudication with no need for vascular studies. But at no time have I expressed that pathophysiology should not be taught. On the contrary, it is the basis not only to understand the sign or symptom but also to create new therapies.

I do not understand, and for this I beg your pardon, the contribution to this modest survey of the excellent list of achievements from our masters of cardiology, the work of our dear Argentine Society of Cardiology, Dr. Leloir's story, the scientific quotes from first-line journals, CONEAU's resolution 1314, etc., etc. Although they are very nice historical references, I see no connection with the publication, even though it is something not only you and I but also all the members of our Society and all the readers of our Journal agree upon.

What I find inadequate is that you have failed to understand the expression "is only for those few who ... will end up doing basic research..." Taken out of context, this phrase suggests that I am not in favor of basic research; however, what I wanted to communicate is that teaching must be appropriate and balanced, and it is a fact that many lecturers—in order to show their level of knowledge—act as if they were news journalists instead of professors who must first teach letter "a" in order to reach letter "z", unless they are sure the audience knows the rest of the alphabet.

There is a teaching technique called "rumor technique", available in any university teaching text, which allows to understand the subjective distortion of a fact or text depending on the idiosyncrasy of the message recipient.

Once again, thank you for your contribution, which I am sure, will call the attention of the Journal's readers more than the original article, and which will be a significant contribution.

Ricardo J. Esper ^{MTSAC}

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SEE RELATED CONTENT:

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The Influence of Language and Memory

To the Director

The recently published letter by Dr. Tajer addresses an issue of great interest for the doctor-patient relationship. (1) The association between language and sensory experiences and cognitive processes is of proven relevance to psycho-social research, though underestimated in clinical practice. The purpose of this letter is to report two classical studies in psychology which have examined the influence of language and memories on decision making. In the mid-1970s, E. Loftus and J. Palmer conducted an experiment to assess the reliability of responses in a group of individuals who had been shown the video of a car crash. (2) When these psychologists asked them how fast the car was going when it crashed, the replies were influenced by the verb used. Thus, when asked at what speed the car “smashed”, the average speed referred by the respondents was 65.7 km/h; when asked at what speed the car “crashed”, the answer was reduced to an average of 63.2 km/h, and progressively to 61.3, 54.7 and 51.2 km/h depending on the alternative use of the verbs “run into”, “collide” or “get into contact”. Therefore, the formulation of the question influenced the physical notion of the car speed. In another experiment, Loftus presented a set of common materials to a group of people. (3) The experimenter asked each of them to perform certain actions with half of the materials, and then to imagine performing different actions with

the rest of the presented materials. Two weeks later, the same participants confused the actions they had performed with those they had imagined when the experimenter asked them to number them. This study demonstrated memory distortion and confusion between performed and imagined actions.

As physicians, we observe it is easier that a patient accepts the risks of a procedure if they are presented as a chance of survival rather than a risk of death. And we can also influence on the patient’s “autonomous” decision making, when we minimize the risks of one treatment at the expense of another. We all know that a warm hand palpating an abdomen produces a different reaction and confidence than a cold one.

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REFERENCES

1. Tajer CD. Thinking Medicine Metaphorically. *Rev Argent Cardiol* 2012;80:485-93 <http://dx.doi.org/10.7775/rac.v80.i6.2081>
2. Loftus EF, Palmer JC. Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behaviour* 1974;13:585-9. <http://doi.org/bzzcg8>
3. Loftus EF. Creating false memories. *Sci Am* 1997;277:70-5. <http://doi.org/ft2tdn>

Rev Argent Cardiol 2013;81: 75. <http://dx.doi.org/10.7775/rac.v81.i1.2083>

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