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Editorial

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Translational medicine/research: who receive the benefits?

Medicina/investigación translacional: ¿quién recibe los beneficios?

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Translational medicine/research in the cardiovascular area has as main objective the integration of basic and clinical knowledge to improve human health. This must be a bidirectional concept/effort, i.e., laboratory bench results are translated to bedside efforts and bedside knowledge is reciprocally translated to bench analysis. A good example of these interactions is the testing of new therapies developed in basic research laboratories and latter tested clinically, providing a feedback to improve novel therapeutic approaches.

The term translational medicine reflects several, not excluding, points of view: physicians use the term to refer to the need to accelerate the incorporation of basic research into clinical medicine, and to close the gap between knowledge and practice. Researchers interpret translational medicine as the testing of novel concepts obtained in basic research in clinical situations, which in turn provide the opportunity for the identification of new paradigms. On the other hand, pharmaceutical companies could use the concept as a process to speed up the development and commercialization of therapies. These points of view reflect only different priorities for achieving as a common goal the prevention or control of human diseases. So, translational medicine, by enhancing the efficiency of biomedical discovery and its application, has become a unifying concept between the complex, specialized and sometimes fragmented field of biomedical research and physicians' expertise.

However, even when translational medicine is a highly desirable conjunction of efforts and perhaps, the best approach to improve human health and quality of life in the short term, there are several problems associated to the translation of biomedical discoveries into clinical practice. Preclinical studies are necessary not only to understand basic mechanisms, but also to obtain information about the safety and efficacy of new molecules. Animal studies provide information without the risk of harming humans. However, studies in animals are simplified models that do not completely reflect clinical situations. There are not «exact/accurate» animal models for each human pathology, but only good approximations, fact that limits the extrapolation results directly into clinical practice. Other associated problem is the cost of producing new molecules, their preclinical testing, and human clinical trials to obtain regulatory agencies' approvals, can be very high, sometimes tens of millions of dollars. To solve these limitations, we need to improve translational medicine, with more accurate preclinical testing and developing creative cost-effective solutions to clinical testing. In consequence, there is a need for clinical scientists who can serve as facilitators of the translational process with a strong basic background and excellent clinical qualities. The training of such scientists is lengthy and expensive, we need to find the best and short way to find/form them or to implement strong and wide connections among basic and clinical researchers specially those working already in similar fields.

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On regard to these efforts, as it happens in all medical fields, translational medicine/research similarity in the cardiovascular area is relevant. It must be taken into account that, even when vast advances in the development of molecules for the treatment of cardiovascular diseases (CVD) (i.e., statins, antihypertensives, etc.) have been recently implemented and approved for their use in humans, the morbidity and mortality of CVD is still high. The only way to bring down these outcomes, is to implement approaches to develop translational medicine/research to unify efforts and decrease time and costs associated with its development. Several efforts have been implemented in this regard, as example, the International Society for Cardiovascular Translational Research (www.isctr.org) coordinate basic and clinical researchers, regulatory authorities and medical industry with the goal of improve the transfer of new evidence into clinical applications. We need to follow them and increase the interaction between basic and clinical research, particularly in developing countries where the support to any type of research is null or scarce.

At the end, basic researchers, clinical physicians and most importantly, patients will receive the benefits of these interactions.

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