

What do biomarkers mark?

A slide shown in one of the sessions of the 10th Annual World Congress of Pulmonary Vascular Research Institute held in Rome in January caught my attention. I saw a fact that I had been observing for a long time in numbers. The content of the slide in summary was as follows: estimated number of papers documenting thousands of claimed biomarkers is 150,000. However, estimated number of biomarkers routinely used in the clinic is 100.

What is the current definition and characteristic of a biomarker for cardiology? I would like to quote a passage as is from an article I have recently read. *“Biological marker or biomarker can be objectively measured and it is an indicator of biological processes. From the definition, ideal biomarker has the following characteristics: a high presence in the heart tissue, an absence in other tissues, an absence in the serum of healthy individuals, quick release for the purpose of early diagnosis, a long half-life for the purpose of late diagnosis, cost-effectiveness, and positive evaluation in clinical trials.”**

As it is indicated by the aforementioned description, it is easily understood how difficult it would be for a marker to become a biomarker. The number of markers that the guidelines recommend in the field of cardiology and we routinely use is only a few. Can you immediately think of one other than troponins and BNP (proBNP)? We all observe that CRP, which is considered to go into daily use undoubtedly in cardiology as a biomarker, does not appear in current guidelines with the highest level of recommendations rates.

What is the reason for researchers to conduct thousands of biomarker studies and publish them even though they are all aware that their contribution to clinical practice would be questionable? I suppose that the answer can be found by looking at the methods of the studies. It is easily seen that these are studies conducted by the utilization of blood and cell specimens taken from patients for routine examination. That these studies do not necessitate additional endeavor, provide quick results, have no possibility of harming the cases, and generally have no follow-up period make them appealing for researchers. On top of that, atherosclerosis, the field in cardiology where biomarkers are studied the most, makes everything easier for researchers as a systemic disease. A biomarker, whose contribution/impact on this disease, which presents itself with the interaction of many factors including inflammation, is tested, it is nearly impossible to attain a negative result in laboratory settings.

This universal truth in the field of scientific studies is naturally reflected on our country. I believe that going through the topics of the articles in our journal is sufficient to see this reality. When the contributions of these articles published in our journal, whose hypothesis, methods, conceptions, and statistics follow the standards of current scientific studies are looked at, the result is unsurprisingly compatible in the light of the aforementioned information. There are no articles on biomarkers among the first 10 most cited articles published in our journal.

At the risk of much criticism, I would like to put on paper a reality in our country. The point that is always emphasized orally in settings where the problems of journals or scientific studies are debated but not put in written form, in other words the concern that is not extensively announced (by accepting the possibility that I may have missed this) is the fact that a particular biomarker is consecutively and contagiously studied in centers all around the country and put in written form. The fact that these articles cite one another is a contributing element of the impact factor of our journal, and therefore, bringing this forward as an editor may be regarded strange. I intend to make an explanation later.

Should these studies be never carried out? There is no doubt that they will be carried out. When the aforementioned amenities and the promotion rules of our country are taken into consideration, it would not be a prophecy to say that the uppermost studies preferred by those starting to their academic journeys are those of biomarkers. However, acknowledging this fact must not prevent us from having a critical point of view. Let's look at our institutions. We see that those with academic ambitions complete this process by their early forties. A progress in the quality of the scientific studies in our country and having these studies make universal contributions can be possible if these young scientists join forces with one another and orient towards prospective, multi-center projects that include clinical end points rather than focus on studies that gets quick results but with low contribution, such as the studies carried out by biomarkers.

I would like to end my writing by completing the explanation I have left unfinished above. The rise of journals in the scientific arena is very close to the chicken or the egg causality dilemma. What is correct is that more high-quality papers are received if the impact factor is high. On the other hand, what is also correct is that the impact factor can increase only if high quality papers are received. The important thing is redressing balance by taking the reality of our country into consideration. Conducting scientific studies is a challenge not a necessity to maintain life. Thus, I think that our share as the components of this field is to produce ideas on how to carry our studies onto a level that can create international contributions and carry these ideas into action. Otherwise, it is easy to reply to the question forming the title of this writing with the current facts. If these studies carry on with such qualities, biomarkers will remain as markers that fill up the academic CV files.

Zeki Öngen
Editor
Istanbul-Turkey

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