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Biomarkers: One of the Promising Tools for Diagnostic Purposes

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Editorial

The use of biomarkers in basic and clinical research as well as in clinical practice has become so commonplace that their presence as primary endpoints in clinical trials is now accepted almost without question. In the case of specific biomarkers that have been well characterized and repeatedly shown to correctly predict relevant clinical outcomes across a variety of treatments and populations, this use is entirely justified and appropriate. In many cases, however, the "validity" of biomarkers is assumed where, in fact, it should continue to be evaluated and revaluated.

The term "biomarker", a portmanteau of "biological marker", refers to a broad subcategory of medical signs – that is, objective indications of medical state observed from outside the patient – which can be measured accurately and reproducibly. Medical signs stand in contrast to medical symptoms, which are limited to those indications of health or illness perceived by patients themselves. There are several more precise definitions of biomarkers

WHO has stated that a true definition of biomarkers includes "almost any measurement reflecting an interaction between a biological system and a potential hazard, which may be chemical, physical, or biological? The measured response may be functional and physiological, biochemical at the cellular level, or a molecular interaction." Exploration of biomarkers has stated that the range of all the biomarkers starts from pulse and blood pressure through basic chemistries to more complex laboratory tests of blood and other tissues.

There has long been broad consensus that clinical endpoints are the primary, and to some the only relevant, endpoints of all clinical research, and ultimately of all biomedical research. The goal of clinical practice is to improve morbidity and mortality, not to change quantifiable features of patients' innate biochemistry, for instance, with no outward clinical effect. Similarly, patients seek treatment for their diseases, not for the numerical measures that frequently but not perfectly correlate with their illnesses.

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