조청연제

From Pharmacogenetics to Pharmacoeconomis: Selected Examples in Improving Rheumatoid Arthritis Outcomes

Sang-Cheol Bae

Department of Internal Medicine. Division of Rheumatology,
The Hospital for Rheumatic Diseases, Hanyang University College of Medicine, Seoul, Korea

Rheumatoid arthritis (RA) is a prototype of inflammatory arthritis, characterized by chronic and erosive synovitis of peripheral joints. The severity of the joint inflammation fluctuates over time, but an outcome in uncontrolled disease is progressive joint destruction, deformity, and disability. Recently the treatment of RA has markedly improved with the advance of science. However, RA is still a life-long chronic, disabling disease, which, at present, cannot be cured and thus it is very important to evaluate long-term consequences as well as economic impact in the outcome assessment of any therapeutic modality.

To improve RA outcome in terms of both effectiveness and cost, it is important to predict the efficacy and adverse events of the treatment. There is great heterogeneity in the way that individuals respond to drug therapy in terms of both toxicity and clinical efficacy. In the field of RA, investigators have tried to correlate epidemiological factors with outcomes achieved through drug therapy. Although these parameters (early disease, female sex, prior disease modifying drug antirheumatic drug use, functional class, disease activity, etc) are useful in considering future treatment, they are not useful to detect differences in response between individual therapies. In addition, these parameters are exogenous factors rather than physiological manifestations that exist within individual patients. Thus, they do not serve as mechanisms by which drug therapy can be individualized to maximize response and minimize toxicity. Recent advances in molecular biology have allowed for a reliable method, such as genotyping, to predict drug response or adverse event, which is called "pharmacogenetics or pharmacogenomics".

Pharmacogenetics and pharmacogenomics have emerged as fields aimed at identifying inherited factors that may predict inter-individual variations in drug efficacy and toxicity. Pharmacogenetis examines the influence of a specific genetic variation on pharmacological response, whereas pharmacogenomics refers to a spectrum of approaches to explore the association of genetic variation at any locus with

drug efficacy or toxicity, although these terms are often used interchangeably.

The broad availability of genetic information and technologies heralds an era when practitioners will utilize genomic testing to individualize patient's care. Pharmacogenetics offers the potential to improve drug effectiveness, reduce adverse drug reactions, and ultimately provide cost-effective care. However, it has had little impact on current clinical practice and the economic implications of pharmacogenetics remain unclear. In this lecture, cost-effectiveness issues will be discussed with selected examples of pharmacogenetics work.

References

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