In the heuristics-biases program, a heuristic is often considered to be a source of diagnostic errors, as it is believed to deteriorate into a cognitive bias causing distorted judgment (1).

It is important to remember, we suggest, that this happens only when the Bayesian (probabilistic) method is the normatively rational (correct) method of diagnosis as a heuristic has been defined as a simple, judgmental operation which replaces assessment of probability (2). Therefore, heuristic reasoning is considered incorrect only because it does not lead to a diagnosis in the form of a probability.

But we have pointed out, the Bayesian (probabilistic) method is not employed for diagnosis in practice as it fails to achieve the goal in diagnosis of correct determination of a disease in a given, individual patient (3). Instead, the hypothesis generation and verification method which achieves this goal is employed for diagnosis in practice (3).

We shall now discuss that a heuristic, instead of being a source of diagnostic errors, plays an extremely important role in making diagnosis possible in the hypothesis method.

In this method, the traditional notion of a heuristic as a method of discovery (in Greek, heuriskén = to discover) of a plausible explanation for a problem situation in which the available information is incomplete and fragmentary is employed (4). This explanation is then formulated as a hypothesis.

A good example of the important role of a heuristic in formulating a fruitful hypothesis is Einstein’s revolutionary hypothesis of the particle nature of light in his paper ‘Concerning a heuristic point of view toward the emission and transformation of light’ (5).

It is important to note that a heuristic only generates a hypothesis which is then to be verified as being correct by tests.

Let us now consider several heuristics which are helpful in generating a diagnostic hypothesis.
We suggest resemblance is the commonest heuristic in suspecting a disease. For example, when we encounter a patient with dyspnea and pleuritic chest pain, we may suspect pulmonary embolism from the resemblance of this patient to other patients with pulmonary embolism who had a similar presentation seen by us in the past.

The heuristic of analogy played an important role, we believe, in our suspecting tocainide (an anti-arrhythmic agent) induced interstitial lung disease in the first reported case of this disease. (6). We suspected it from its analogy to other drug induced lung diseases.

We find the highly creative heuristic of imaginative reconstruction to play a role in suspecting HIV disease and Pneumocystis pneumonia in a 65 year old grandfather without any known risk for HIV disease who presents with pulmonary infiltrates in a recent clinicopathologic conference (CPC). As the discussing clinician states, ‘It is Arthur Miller’s play Death of a Salesman that suggested to me a risk factor in this retired salesman, he is human and affairs are common’.

We wish to emphasize again that the end product of a heuristic is only a hypothesis which needs to be verified by tests before it can be considered correct.

But the generation of a diagnostic hypothesis is a crucially important step in diagnosis, because without it diagnosis would not be possible.

In the light of above discussion, the heuristics-biases program in which a heuristic is a source of diagnostic errors is not applicable to the hypothesis method of diagnosis in practice.

We suggest the importance of using heuristics during diagnosis should be pointed out in teaching diagnosis to novice physicians.

References