

Medical Errors According to Maimonides' *Treatise on Asthma*

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The *Treatise on Asthma* by Moses Maimonides, which was written approximately 800 years ago, is the first known book dedicated entirely to asthma. The book also includes issues regarding preventive medicine, nutrition, the philosophy of science, and medical ethics. These topics are, in part, still relevant today.

The *Treatise on Asthma* is also called *The Book of Meals* because of the importance given to proper diet in the treatment and prevention of asthma. The book was written in 1190 in Arabic and translated into Latin by the French doctor

Armengaud de Blaise in 1302 and into Hebrew (from Latin) by the Jewish-Spanish physician, Samuel Ben Venisti of Saragossa in 1320. It was translated a second time directly from the Arabic into Hebrew by Joshua Shatibi [1]. In 1940, Dr. Suessman Muntner published Ben Venisti's Hebrew version of the book [2] and in 1965, after additional manuscripts of the book became available, a second revised Hebrew edition appeared [3]. The book was translated into English by Muntner in 1963.

Treatise on Asthma was written as a majestic prescription for the asthmatic son or nephew of the Vasier Alfadh al or of the Sultan Al-Afdal Nur a Din Ali. It contains advice related to different aspects of the medical profession, including special reference to medical errors. It also includes quotations of other famous physicians such Hippocrates, Aristotle,

Galen, and Al-Razi (Rhazes of Persia) regarding medical mistakes.

According to Hippocrates, two principles need to be always remembered by the physician:

- Help the patient
- Do not harm the patient. This concept was reappraised to "Primum non nocere". To this, Maimonides adds the following advice: Before starting treatment, consider what harm the treatment may cause in case of mistaken diagnosis and do not treat unless completely sure of the safety of the treatment.

When to use medication?

Maimonides quotes the principles of Al-Razi: When the disease is stronger than the natural resistance of the patient, nothing can be done, and medication is of no use. When the resistance of the patient is stronger than the disease, there is no need for medication. Only when the resistance and the disease are balanced can the physician influence the course of disease by medications. According to Hippocrates: "Nature cures disease", meaning that there is no need for medical intervention in most diseases.

There are two major types of medical errors according to Maimonides: Mistakes in diagnosis and mistakes in treatment. Many medical errors are not noticed because the consequences of the errors are not severe.

Maimonides describes two common medical mistakes of treatments widely used in the 12th century medical practice, which fortunately are usually not fatal: unnecessary use of purgative and bloodletting.

"Many times have I seen a strong purgative prescribed for a patient who did not need even a mild one. This resulted in copious blood from below". Fortunately even if the error is repeated for several days, the patient usually recovers. Another common mistake is bloodletting in patients with stomach ulcers. This will usually worsen the condition of the patient; however, also in these cases, the patient usually survives.

Sometimes apparently insignificant errors of the physicians may result in severe consequences or death. For example, mistakes in dosage of medications may cause the death of a patient. Maimonides quotes Galen: "Medication taken in excess causes harm". Maimonides reports a case of Sultan Amrael-Muselmin of Marrakesh, a young man treated for a relatively simple disease by several great professors of medicine. The patient died suddenly, possibly due to overdose of medicine. Resuscitation efforts were in vain. Therefore, Maimonides said that he admires the physicians of Egypt who cure their patients with diet alone or with minimal medications. Indeed, a major part of Maimonides' *Treatise on Asthma* is dedicated to dietary advice for the treatment of asthma.

Who make errors in medication?

Every physician may err. Maimonides said the following:

- "Even the great and famous physician contemporaries of Galen sometimes made serious mistakes."
- "Even Hippocrates himself was not free at it."

- "I, myself, know well that I am not perfect in this art."

According to Maimonides, there are four major causes of medical errors:

- Quack physicians without previous medical education who claim that they have experience
- Hot climates which destroy medication
- Failure to adjust the dosage of the medication to the weight of the patient
- Wrong pharmacological concepts: the principle of choosing the milder efficient medication is not followed. What can be treated with a single medication, or only by diet, should not be treated with combined remedies

The learned physician, according to Maimonides, hesitates before giving a medication since, "there is no end to the ideas (treatment options) that surge in him." The unlearned physician decides very easily on treatment (since he is unaware of possible complications). Doubts in medical matters are essential and even Galen used to reconsider his medical decisions: "A man's lifetime is hardly sufficient to cover part of the medical art, let alone the whole of the art of medicine" (aphorisms of Hippocrates).

Treatment by many physicians is problematic. Sometimes, the patient is treated simultaneously by many physicians not knowing about each other. This

lack of communication causes confusion, and the patient hardly knows which physician is right. This confusion may also cause inconsistency and frequent unnecessary changes of the treatment. In addition, some physicians may speak ill of their colleagues or feel a limited responsibility for the patient's medical situation since other doctors have also been consulted. However, in the case of consilium of doctors, there is an advantage since they may complete each other's knowledge or memory. However, if they begin to quarrel with each other and want to show off, it is better to replace them and rely on nature alone.

Regarding errors of diagnosis, Maimonides quotes Aristotle who said: "Erroneous medical judgment is more frequent than is the right one, most physicians fail to establish the factors. (diagnosis)" and "Most people die of medicine."

If this is the situation, why not abandon all medicine? The answer for Maimonides is "medicine is a science essential to man, anywhere and anytime, not only in times of illness but in health as well."

Maimonides wrote that "Any sick individual presents new problems. One should not assume that one disease is just like the other. He quoted Hippocrates and Galen and said: "The physician should not treat the disease, but the patient who is suffering from it."

It is a grave mistake to rely on people who claim that they can cure patients without having proper medical education. "Many people have paid with their lives because they were treated by these physicians. One who puts his life in the hands of these is like a mariner who puts his trust in the sea winds that may bring him to the right destination by chance." As Hippocrates said: "Experience alone (without science) is dangerous."

CONCLUSION

One of the major difficulties of the medical profession is the choice of adequate treatment, which is never easy and always a matter of serious reflection.

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Capsule

A dynamic COVID-19 immune signature includes associations with poor prognosis

Improved understanding and management of coronavirus disease-2019 (COVID-19), a potentially life-threatening disease, could greatly reduce the threat posed by its etiologic agent, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Toward this end, Laing et al. identified a core peripheral blood immune signature across 63 hospital-treated patients with COVID-19 who were otherwise highly heterogeneous. The signature includes discrete changes in B and myelomonocytic cell composition, profoundly altered T cell phenotypes, selective cytokine/chemokine upregulation and SARS-CoV-2-specific antibodies. Some signature traits identify links with other settings of immunoprotection

and immunopathology; others, including basophil and plasmacytoid dendritic cell depletion, correlate strongly with disease severity; while a third set of traits, including a triad of IP-10, interleukin-10 and interleukin-6, anticipate subsequent clinical progression. Hence, contingent upon independent validation in other COVID-19 cohorts, individual traits within this signature may collectively and individually guide treatment options; offer insights into COVID-19 pathogenesis; and aid early, risk-based patient stratification that is particularly beneficial in phasic diseases such as COVID-19.

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