

Al-Razi : A Great Arab Epidemiologist

Al-Razi & His Life Time Achievements

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Summary

Attempts will be made to evaluate and validate the contribution of Al Razi in epidemiology in his treatise Kitaabul Judri val Hasba and Al-Hawi. Article also shades light on the different branches of epidemiology.

Key Words: Predisposing factors, Seasonal and personal distribution, Epidemiological triad, Al Razi.

Al-Razi

Abubakar Mohammad Ibne Zakariya Razi known as Rhazes was a Persian from near Tehran who studied in Baghdad, were later become established as the greatest Arab clinician of his time. Rhazes was also interested in music & other branches of science and over half of his 237 works treat of medicine (1).

Achievements of Razi in Medicine and Other Fields

Rhazes was a director of a large hospital in Baghdad and a court physician as well. Noted for keen observation and inventiveness, he was the first to observe papillary reaction to light and becomes the cause for the origin of proverb; curiosity kills the cat. The most highly regarded work is his book on small pox and measles which he distinguished clinically (2). The other most widely known were Al-Hawi, known in the west as the liber continents, an encyclopedia of the medical practice and treatment and the liber medicinalis and abinansorem, a compilation from various sources, but mainly from Hippocrates, Galen, Oribasius and Paul of Agina, which contains such aphorisms as: when Galen and Aristotle agree about something then it is easy for doctors to make a decision but when they differ, it is very difficult to arrive at agreement, and "truth in medicine is an end that can't be reached and all that is written in books is worth much less than the experiences of a wise doctor."

On Keen Observation and Introduction of Experimentation in Medicine

The treatise on small pox and chicken pox, the liber depestilentia, is extremely original and based on direct experience and observation from which he drew very perceptive emphasis on clinical methods.

Exact description was given of the clinical picture of both conditions, as well as information on differential diagnosis of small pox chicken pox: 'the eruption of smallpox, wrote Rhazes is preceded by continued fever, pains in the back, itching in the nose and delirium in sleep. Then acute prickling is felt and this goes all over the body, the cheeks go red and eyes are inflamed. The patient has a sense of heaviness and general discomfort, he sneezes, yawns, feel pain in the throat and chest and breathes and coughs with difficulty. His mouth is dry and he has a headache, feels sick, restless and troubles. Note that feeling restless, sick and trouble is more frequent in chicken pox. While pain in the back are features of small pox other signs are fever and marked reddening of the gums when the pustules appear care must be taken first of the eyes, then the nose and ears, very small white pustules coming up in contact with each other, hard & with out fluid are dangerous and if the patient remains ill even after the eruptions, it is a fatal sign when fever increases after the appearance of greenish or black pustules, and these is palpitation of the heart, it is very bad sign.

About skin care he indicated how pustules could be prevented from leaving bad scars (3).

Some Other Achievements of Rhazes

Adud-ul-dawlah asked him to find a suitable place for establishing the Bimaristan-al-adudi. He hanged pieces of meat in various places of the city and found the place in which the putrefaction of the meat was slowest and thus hypothesized theory of putrefaction, which is broader than germ theory of disease.

He was the first to differentiate clinically between small pox and measles against the old concept of illness.

He was the first who used diuretics, laxatives and the first who used coal of animal origin to blench colors besides medicine chemistry music astronomy, philosophy and religion and many other fields of science and art couldn't left untouched by him. This embedded the enough proofs of keen observation and experiment in the history of medicine and preventive medicine (4).

Kitab ul Judri wal Hasba

This book not only describes the clinical manifestations and management of measles and small pox but also covers descriptive epidemiology and infectious diseases epidemiology (5).

Al-Razi was the first who founded the experimental science in the medicine and the first physician who gave the DD based on clinical examination.(6). Everybody recognized Hippocrates as a first true epidemiologist since he clearly distinguished between diseases which were epidemic and those which were endemic (7), and Galen, as a physician of truly modern idea of disease concept who described role of three factors responsible for disease, viz. predisposing, exciting, and environmental factors (8), but the world is unaware from the fact that Al-Razi, a great Arab clinician was also the great epidemiologist who described all of the basic tools of modern epidemiologist in his book Al-judri wal Hasba and Al- Hawi.

This book has gained regard in Europe and published not less than forty times in different languages (Latin, French, English and German) but could not gain popularity as a book of epidemiology. Al-Razi mentioned fourteen chapters in book (6).

First chapter is describing the epidemiological triad a recent innovation, though the term is not used as such, in medicine that tells the agent, host & environment relationship and tells infectious disease epidemiology (9).

Second chapter provides the knowledge about seasonal and personal distribution of the disease according to temperament, body shape and this is the main tool to estimate the natural history of disease, risk factors, and descriptive epidemiology cannot be study without it (10). He postulated thin person with hot and dry temperament and body shape are more susceptible for measles. Thin, cold, and dry could not get attack of any disease but if he is suffered by small pox, it will be benign.

In his third chapter, he clearly differentially diagnosed the small pox and measles and told about the eruptions of both diseases.

He also described both common and specific sign of diseases. Common signs as continuous fever, itching nose, allergy in the body, chic, eye redness, sore throat, chest pain, dyspne, cough hoarseness in voice, headache and less often syncope. Specific signs as sever back pain in small pox, which is slight or absent in measles distress, syncope and anxiety are more common in measles.

Fourth chapter included ten procedures for management of small pox.

Fifth chapter includes prevention of smallpox during incubation period and this is the longest chapter.

Sixth chapter includes eruption-aggravating factors.

Seventh chapter includes care of eye, throat, joints and other organs during disease.

Eight and ninth chapters suggest procedures of regimential therapies and tells the physician to make the disease mature. For this, he advised, bandage of hot water in patients of good condition and to apply rice to make the lesion dry.

In tenth and eleventh chapters, he told the aesthetic management of skin lesion.

Twelfth chapter includes dietetic planning of not only of small pox and measles but also for other acute respiratory infections (4).

Thirteenth chapter includes the management of bowel function where he stated to avoid purgation in most cases of small pox and measles, except in those who are suffering from severe headache and fever.

Fifteenth chapter describes the prognosis (1, 10).

Conclusion

Small pox was known in antiquity but Rhazes was the first to advocate a definite regime of treatment and prognosis. Eradication of small pox cannot reduce the scope of the scientific validation and evaluation of the book. As the book is not only providing the differential diagnosis of the diseases its management, control and prevention strategies but also lit the brilliant torch on some of the recently introduced branches of medical science like descriptive epidemiology, web of causation, agent, host and environment relationship (epidemiological triad), in its broader sense, and regimental therapies for cosmetic as well as curative values.

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