Summary

The effect of cortisone on the experimental gostric ulceration produced by intraperitoneal injection of aspirin in the rat is studied. Cortisone has significantly prevented the appearance of aspirin-induced gastric ulceration. The possible mechanism of this effect of cortisone is discussed.

Resume

L'effet de la cortisone sur l'ulcère gastrique expérimental produit par l'injection de l'aspirin chez le rat est étudié. La cortisone a significativement prévenut l'apparition des ulcérations gastriques induites par l'aspirin. Le méchanism possible de la cortisone est discuté

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NEEDS OF THE MIDDLE EAST FOR HEALTH MANPOWER ✲

By

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Introduction

The purpose of this presentation is to introduce the Health Manpower situation in the Middle East in the context of its socioeconomic and general health conditions to make possible an objective estimate of the present and the future manpower needs of the area.

In order to do so, first the area of the Middle East and some of its historical highlights will be reviewed. Then some demographic and socio-economic conditions will be examinned. This will be followed by a short evaluation of the health status of the area. The rest of the paper will be evoted to the problem of health manpower and some of the achievements already made in this respect by various countries of the Middle East.

As the subject of this presentation is so broad in its implications of time and of content, it is proper at the outset to delineate the limits of this discussion. Due to the limitation of the data available on all categories of the health team, only two of those, namely physicians and

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nurses, are included in this paper. Admittedly, due to the same limitations, certain countries have not been presented in tabular forms nor included in the discussion.

The Area

The Middle East, according to the Encyclopedia Americana, is composed geographically of six regions:

1. The Nile valley,
2. The Eastern Mediterranean or Levant States,
3. The Tigris-Euphrates Valley,
4. The Arabian Peniusula,
5. Anatolia,
6. The Iranian Plateau.

The Middle East is situated mainly in southwestern Asia and northeastern Africa, which may be brodly described as forming the bridge between Europe, Asia and Africa. Therefore, being as it is, it also enjoys and in a way suffers the conditions prevailing in each of the three continents.

The Middle East has been defined by different authors to include different countries depending upon the subject of their interest (geographic, historic, economic, cultural etc .). For the purpose of this paper all countries considered by the Encyclopedia Americana as Middle East are included this covers a total area of 3,509,284 sq. miles and a population of about 130 millions. Is includes the following countries: Turkey, Iran, Iraq, Israel, Jordan. Lebanon, Syria, Saudi Arabia, Yemen, Aden, Kuwait, Sudan and the United Arab Republic.

In tabular presentations I have included also some countries of the World Health Organization about which some information is available.

Demographic and Socio-Economic Features

It is appropriate and almost necessary to consider first the socioeconomic conditions of the region which have direct bearing on health and manpower.

The distribution of the population in the Middle Eastern countries is very uneven. The Nile Delta has one of the highest population densities in the world. The desert or steppe areas of Egyypt, Arabia, Iran, Eastern Syria and Western Iraq and parts of Anatolia are almost empty.

About 90 to 93 percent of the people are muslims. Christians constitute the majority of the remaining.

In addition to the religion of Islam, the area is characterized in varying degrees by a number of common features. Among these are:

—aridity and a hot climate, with an average population density of 16/sq. kil.

—the extended family and the high rate of population growth. (With a present annual increase of about 2.5 percent, it is estimated that the present population will increase by 56% in 1980).

—low socio-economic levels with primary economic dependence on agriculture, but with increasing industrialization. Though the highest percapita G.N.P. of the world is in this region, however the average percapita income is less than 200 U.S.$.

—the presence of nomadic elements.

—a strong intellectual tradition coupled with a low but rising literacy rate, which averages less than 20 percent.

Table 1 shows the mian demographic and socio-economic feature of some countries in the Middle East.

The people of the region share a pride in the great past of the Middle East, the scene of some of the most dramatic and decisive episodes in the history of mankind.

Here, metals were first worked, animals first domesticated, plants first cultivated, and the wheel invented.

The magic symbols which have made mankind's intellectual voyage possible namely the alphabet also had their first here here in the Middle East.

TABLE 1*. MAIN DEMOGRAPHIC AND SOCIO-ECONOMIC FEATURES OF SOME COUNTRIES OF THE MIDDLE EAST

Country	Population estimates mid - 1964 (million)	Annual rate of increase %	Population Projection 1980 (million)	Population per square kilometer 1963	Percapita G.N.P. (U.S.$)	% Literacy 15 yrs. & over
1. Turkey	31.1	2.6	48.5	39	233	38.6
2. Iran**	25.1	2.5	33.1	14	232	12.8
3. Iraq	7.0	2.4	13.8	15	228	14.6
4. Israel	2.4	1.8	3.1	115	1111	84.2
5. Jordan	1.8	3.9	3.4	20	199	32.4
6. Lebanon	1.8	—	3.1	212	383	—
7. Syria	5.4	2.1	9.3	28	184	35.4
8. Saudi Arabia	6.6	—	9.4	3	175	—
9. Yemen	5.0	—	6.9	26	90	—
10. Aden	0.2	2.5	—	—	—	—
11. Kuwait	0.4	4.1	19.3	23	3300	35.0
12. Sudan	13.1	2.8	5	5	100	4.4
13. UAR	26.0	2.8	46.8	28	139	26.3
TOTAL M.E.	125.9	2.5	196.7	16		
14. Cyprus	0.5	1.7	0.7	64	620	75.9
15. Ethiopia	21.0	—	29.0	18	48	48
16. Libya	1.3	1.9	1.9	1	359	—
17. Pakistan	100.7	2.1	153.0	104	81	—
18. Somalia	2.3	1.5	2.9	4	45	—
19. Tunisia	4.7	1.4	6.5	36	185	15.8
TOTAL EMRO	225.3		342.2			

* Demographic year Book 1964, United Nations Publication.

** Figures are corrected for 1966.

Art, architecture, and the natural sciences all flourished here first. The world's great monotheistic religions, Judaism, Christianity and Islam, all sprang from this soil.

We should not and can not forget the ancient lustre of medical sciences of this region : the Codes of Hammurabi, Zoroaster, the schoolt of Edessa and Jundishapur, and the great Iranian physicians and scientists Mohamad Zakaria Razi and Abu Ali Sina, to mention but few.

Health Status

In discussing the health manpower of any region it is essential to consider the health status of the area.

Health conditions should not be reflected only in the type of health workers needed, but also in the curriculum of all health personnel training programs. For example, some special categories of personnel Medical Health Assistants in the Sudan, Health Officers in Ethiopia, or some special categories of personnel as well as auxiliaries in Nursing and Sanitation in other countries.

During the past decade most of the countries of the region, in common with many other developing countries, have shown a rapidly increasing interest in health planning. Out of 16 EMRO countries, 14 had completed their national health planning by 1964, while in the American Region, 15 countries out of 25 and in Africa only 13 out of 27 had done so.

The overall conditions of the countries in the Middle East are shown in Table 2.

Unfortunately valid data on crude death rates, infant mortality rates and other specific death rates are either not available or not reliable. For instance, data about infant mortality which is traditionally regarded as a good measure of the health condition in the broadest sense, is reported only from two thirds of the Midele Eastern countries. Specific death rates such as deaths from 1 to 4 years of age or maternal mortality are practically not available.

The crude death rate which indicates the over all intensity of the mortality is valuable for year to year evaluations within a country and for international comparisons, provided it is carefully and correctly calculated. For example, in the *Third Report of the World Health Situation*, a crude death rate as high as 25 is reported for Iraq, while in the same period the figure for Syria ia reported as only 4.3 per 1000 population.

However, it can be concluded in this report that the majority of the countries in this region which, 10 years ago, had relatively high death rates show a declining trend in their record of mortality.

In eight out of nine countries in the Eastern Mediterranean Region for which annual death rates have been calculated, the declining trend is evident varying from about 10percent to nearly 40 percent, which is the figure in Jordan.

Seven out of eight countries experienced a declining trend in their infant mortality. But here again the percentage reduction was considerable in some, and very small in others. The two extremes are 50 percent (Iraq) and 3 percent (United Arab Republic). The majority experienced an improvement of from 40 to 50 percent. Jordan, where the rate was 89.0 in 1954 and 49.5 in 1963 is an example of this latter group.

The identification and the knowledge of the incidence and prevalence of illness can provide information which is useful in describing and assessing the health situation in a country. This information is particularly important when it relates to the causes of permanent or temporary incapacity and is therefore relevant to a country's industrial or agricultural production.

Such comprehensive morbidity statistics are unfortunately not always available except for data on the notifiable diseases which are only a fraction of the conditions of "departure from health".

Nevertheless, valuable information can be gleaned from the study of the data provided by the notification of these diseases. Malaria and tuberculosis appear as the outstanding diseases, each being a serious cause for concern in six countries of the Middle East. The diarrheal disease

TABLE 2* MAIN VITAL AND HEALTH STATISTICS OF SOME MIDDLE EAST COUNTRIES

Country	Birth Rate	Crude Death Rate	Infant Mortality Rate	Death Rate 1-4 year per 1000 pop. at risk	Maternal Mortality Rate	Hospital beds per 1000 population
1. Turkey	44.0	18.0	165.0	—	—	1.8
2. Iran**	40.3	15.0	97.7	2.2	—	1.1
3. Iraq	47.0	23.0	21.0	—	0.8	2.0
4. Israel	25.0	6.2	26.9	1.4	0.5	7.0
5. Jordan	46.3	6.4	49.5	—	0.8	1.9
6. Lebanon	—	—	13.6	—	—	—
7. Syria	26.2	4.3	26.3	—	0.3	—
8. Saudi Arabia	—	—	—	—	—	—
9. Yemen	—	—	—	—	—	—
10. Aden	34.9	9.2	92.3	—	—	1.4
11. Kuwait	48.1	6.5	50.1	—	—	8.5
12. Sudan	50.0	—	—	—	—	1.0
13. UAR	43.9	15.8	108.0	—	—	2.1
14. Cyprus	24.2	6.6	20.2	0.8	0.18	2.8
15. Ethiopia	—	—	—	—	—	—
16. Libya	—	—	—	—	—	—
17. Pakistan	43.0	16.0	—	—	—	0.3
18. Somalia	41.1	24.5	158.0	—	—	1.4
19. Tunisia	45.0	25.0	74.0	—	—	—

* Third report on the World Health Situation, WHO.

** Figures are corrected for 1966.

and the dysenteries follow closely and are designated as major health hazards in five countries. Measles, whooping cough, typhoid, and trachoma are very common in most countries and infectious hepatitious hepatitis, scarlet fever in some.

Generally speaking, the collection and analysis of health statistics are in an early developing stage in most countries of the Middle East. Morbidity statistics only reflect in most instances a better reporting for communicable diseases.

Impact of health manpower

I would like to quote here the Greek epigram "it is the men and not the walls that make the city". No other words can describe more clearly the present needs of the world's health services.

The effectiveness of any health service depenps, in general terms, on a particular combination of three basic ingredients:

— material resources and facilities,

— a body of scientific knowledge and technique, and

— a group of specialized individuals whom we designate as Health Manpower.

In reviewing the *Third Report on the Wold Health Situation,* one may be interested by the fact that many countries of this region regardd the shortage of their health manpowers as one of their main administrative problems. Furthermore, the health administrators of Cyprus place their deficiencies in medical and nursing personnel at the head of all their health problems.

The question of manpower is a key issue in all sections and disciplines. Many countries of the Middle East are at present in need of a much greater number of physicians, nurses and other health workers than they already have. Obviously, the future requirements for health manpower will be enormous if acceptable standards of health and medical care are to be attained, mainly because of the following factors:

a) a present low ratio between health personnel and population,

b) the additional manpower needed to keep a high rate of population increase,

c) the replacement of professional personnel who migrate to more economically developed areas,

d) the need for manpower to staff the expanding public health programs and medical care services.

Need for more manpower does not not apply to physicians in all specialties; it also applies to dentists, pharmacists, midwives, nursing auxiliaries, medical technologists, laboratory technicians and other professionals on the health team such as social workers, sanitarians, health educators, statisticians, hospital administrators, health administrators and other related types of personnel.

The *Third Report on the World Health Situation gives* some information but the reliability and accuracy of these data vary from country to country, and except for professional groups, the data on various auxiliaries are not comparable because of the different standards in their education and training.

Taking into account the limitations of the data, it is estimated that in the Middle East there were about 45,000 physicians in 1966. The data on the following categuries are for 1963: 10,000 graduate nurses, 23,500 auxiliary nurses, 4,000 midwives, 6,500 dentists, and 10,000 pharmacists.

Tab 3 is an attempt to show the present situation and shortage of physicians in the countries of the Middle East.

Doctor to population ratio: Although the doctor to population ratio is crude, primitive and even misleading, and does not give the information required to assess the real severity of doctor shortage, it is still considered the best available indicator and is widely used.

The doctor to population ratio in the Middle East a very wide range. Israel and Kuwait are much more adequately provided for than


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TABLE 3*. CERTAIN DATA ABOUT PRESENT SITUATION OF HEALTH MANPOWER (PHYSICIANS) OF SOME MIDDLE EAST COUNTRIES

Country	Percent Enrolment in Second. Level Education	Number of Medical Schools **	Number of Annual Graduates	Number of Physicians (1963)	Population per Physician	Present Deficit	
						1/1000 ratio	1/2000 ratio
1. Turkey	14.2	5	425	9664	3200	21,000	5,886
2. Iran**	11.8	7	600	7090	3500	18,000	5,410
3. Iraq	21.2	2	108	1436	4900	5,500	2,064
4. Israel	46.2	2	64	5509	400	0	0
5. Jordan	—	0	0	379	4800	1,420	520
6. Lebanon	5.3	2	74	1531	1100	300	0
7. Syria	—	1	69	978	5400	4,400	1,722
8. S. Arabia	1.7	0	0	495	13000	6,100	2,800
9. Yemen	—	0	0	32	16000	4,968	2,468
10. Aden	—	0	0	92	2200	110	0
11. Kuwait	—	0	0	449	800	0	0
12. Sudan	6.2	1	22	435	29500	12,800	6,115
13. UAR	17.2	6	815	10929	2500	15,000	2,070
TOTAL M.E.		26	2177	39019		69,688	24,000
14. Cyprus	—	0	0	426	1380	74	0
15. Ethiopia	0.5	1	0	200	100200	20,800	10,400
16. Libya	8.2	0	0	205	5800	1,100	450
17. Pakistan	16.2	15	1000	15668	6430	85,000	34,750
18. Somalia	0.7	0	0	67	30000	2,200	1,100
19. Tunisia	11.8	1	0	421	35000	3,800	1,900
TOTAL EMRO (Turkey not included)		38	2752	46342		178,500	66,300

* Demographic year Book 1964, United Nations Publication.
** Figures are corrected for 1966.

any other country. At the other extreme comes the Sudan with a ratio of 1/29000 which however falls to 1/12000 if medical assistants are included. The UAR with a ratio of 1/2500 is rather better than the regional mode of about 1/3500.

If a ratio of one doctor to 2000 population is considered as a relatively acceptable and achievable standard for the region as a whole, about 20,000 more dotors (that is 50 percent of those presently available) will be necessary.

Apart from the overal deficiency in the number of qualified doctors, there is also the question of their maldistribution in the community and of their tendency to concentrate themselves in urban centers. For example, the city of Tehran with only one tenth of the country's population absorbs almost one third of the total doctors available in Iran.

Medical Schools:

Various calculations indicate that there should be at least one medical school for every two to three millions population. Taking the last figure as a minimum standard, the Middle East with its present poulatiun needs 45 medical schools with at least 4500 graduates per year. At present there are only 26 medical schools and about 2500 graduates. Therefore, it is estimated that 20 additional medical schools with 2000 additional graduates per year are needed.

One of the most crucial problems in the establishment of a new medical school is the provision of a suitable teaching staff. Allowing only 100 teachers of different academic ranks for each school, this implies the provision of 2000 additional teachers for the additional medical schools needed. Since many of the existig schools are under staffed, the magnitude of the teacher shortage is even greater.

Considering the present number of physicians available, the rate of annual graduation, and the population increase, the future need for 1980 has been calculated in Table 4, for each country and for the region as a whole.

TABLE 4*. CERTAIN DATA ABOUT THE FUTURE NEEDS OF HEALTH MANPOWER (PHYSICIANS) OF SOME MIDDLE EAST COUNTRIES

Country	Number of Physicians (1963)	Number of Annual Graduates	Physicians Needed in 1980		Deficit 1980 with Present Training Capacity	
			1/1000	1/2000	1/1000	1/2000
1. Turkey	9664	425	48500	24250	31500	7360
2. Iran**	7090	600	33100	16550	15700	0
3. Iraq	1436	108	13800	6900	10500	3736
4. Israel	5509	64	3100	1550	0	0
5. Jordan	379	0	3400	1700	—	—
6. Lebanon	1531	74	3100	1550	300	0
7. Syria	978	69	9000	4500	7100	1418
8. S. Arabia	495	0	9000	4500	—	—
9. Yemen	32	0	6900	3450	6868	3318
10. Aden	92	0	2500	1250	2408	1158
11. Kuwait	449	0	—	—	—	—
12. Sudan	435	22	19000	9500	18500	8463
13. UAR	10929	315	46000	23000	22000	0
TOTAL M.E.	39019	2177	190500	95250		32800
14. Cyprus	426	0	700	350	—	—
15. Ethiopia	200	0	29000	14500	—	—
16. Libya	205	0	1900	950	—	—
17. Pakistan	15668	1000	153000	76500	120000	44668
18. Somalia	67	0	2900	1450	—	—
19. Tunisia	421	0	6500	3250	—	—
TOTAL EMRO	46342	2752	336000	168000		

* Third report on the world health situation, WHO.
** Figures are corrected for 1966.

Discounting losses from death, retirement, and the well recognized phenomenon of migration, it is interesting to note that out of 9 countries which at present have a ratio below the standard of one to 2000, only 2 countries namely UAR and Iran will pass this standard by 1980 with the present rate of annual graduates of their own schools; while Iraq and Sudan, not mentioning the countries which at the present do not have medical schools of their own, will experience an even greater shortage if the present rate of annual graduation is maintained.

We have up to now focused our attention primarily on physicians. It should be pointed out that while physians are very important and professionally the best trained members of the "health team", they do not by any means constituse the majority of those engaged or should be engaged in the variour phases of the health services. Physicians require the collaboration of many others, from nurse to hospital employee, whose activities make the operation of the health service possible.

Table 5 deals with nurses, midwives and their auxiliary staff. What has been said for the medical shortage applies with even greater force to the grave dearth of nursing personnel.

The shortage of nursing personnel is critical in most countries of the region, as in many other countries of the world. It appears to be a limiting factor in the development of health services at the moment. In all countries of the region there are more physicians than nurses, whereas one would hope for the reverse to be true. The exception in this regard is the Sudan, where the number of qualified physicians is very low.

The acute shortage of nurses is somewhat mitigated in many places by the utilization of nursing auxiliaries. World Health Organization has given strong support to the training and utilization of auxiliary personnel. In the last column of Table 5 total nursing and midwifery personnel, both professional and auxiliary, are compared with the number of physicians available in various countries. Thus the ratio of physicians to nursing staff as a balancing factor in the various categories of health manpower, has shown favourable improvement particularly in the training of auxiliaries is receiving thoughtful and considerable attention.

TABLE 5*. CERTAIN DATA ABOUT THE PRESENT SITUATION OF HEALTH MANPOWER (NURSES AND MIDWIVES) OF SOME MIDDLE EAST COUNTRIES

Country	Nursing Staff		Midwifery Staff		Total Nursing and Midwifery Staff	Ratio of Physician to	
	Qualified	Auxiliary	Qualified	Auxiliary		Qualified Nurses	Nursing Staff & Midwifery
1. Turkey	2383	2206	1356	2825	8770	1-0.25	1- 0.9
2. Iran**	2011	6446	1357	399	10213	1-0.30	1- 1.5
3. Iraq	683	349	95	574	1701	1-0.45	1- 1.1
4. Israel	2500	4590	25	325	7440	1-0.5	1- 1.5
5. Jordan	277	—	198	—	475	1-0.7	1- 1.5
6. Lebanon	—	—	—	—	—	—	—
7. Syria	408	—	290	—	698	1-0.5	1- 0.7
8. S. Arabia	—	—	—	—	—	—	—
9. Yemen	—	—	—	—	—	—	—
10. Aden	102	—	7	4	113	1-1.1	1- 1.1
11. Kuwait	245	1126	—	—	1371	1-0.5	1- 3
12. Sudan	578	4017	—	1012	5607	1-1.3	1-14
13. UAR	768	9206	1778	3841	15593	1-0.07	1- 1.5
TOTAL M.E.	9741	23454	3940	8980	46115		
14. Cyprus	279	342	471	—	1092	1-0.5	1- 2.5
15. Ethiopia	—	—	—	—	—	—	—
16. Libya	—	—	—	—	—	—	—
17. Pakistan	5575	—	1305	—	6880	1-0.3	1- 0.4
18. Somalia	—	—	—	—	—	—	—
19. Tunisia	—	—	—	—	—	—	—
TOTAL EMRO	13212	21590	4300		45317		

* Third report on the world health situation, WHO.
** Figures are correct for 1966.

Discussion and Conclusion:

The shortage of health manpower in the Middle Eastern countries has been discussed and the magnitude of the problem for some categories presented in tabular form. It is obvious that the need for all categories of health workers exists In order to estimate the future manpower needs of any country, it is necessary to consider the following important dimensions: population increase, expanding medical physical facilities and new progresses in medical services as well as special needs of population age groups. It is also necessary to consider the present deficit which generally exists.

However, some limiting factors are at play which adversely affect the possibility of fulfilment of such needs.

The first of these limiting factors are inadequate training facilities. The second factor to be considered is the limited number of potential candidates for advanced professional training. This factor is well illustrated in Table 3 where in some countries the percent enrolment in secodary schools is extremely low.

Limited economic support of overall health services is another limiting factor. The point is often made, and too often neglected, that the development of a country is throgh and for its people. People are the principal ingredient and the recipients of progress.

It follows that planners and economists need to recognize that capital investment in a healthy population is a prerequisite for achieving economic and social growth, and, as stated before, the availability of health workers in quantity and quality at the right time and place is a prerequisite for the success of any health program.

Therefore, it is obvious that programs for training health manpower at all levels and categories must be given serious attention because of the costs and time involved. In most developing countries of the Middle East the problem of training adequate numbers of the right kind of personnel is specially critical for the following reasons:

resources are limited

effective demand is limited

needs are vast.

The second of the three reasons mentioned is worthy of special consideration here. Absorption and utilization of trained personnel is extremely important. Otherwise there is a risk that urban centers will be over-crowded with professional health workers, or migration to other countries will ensue, resulting in an intensified drain of human resources, known as *brain drain* which is already a critical problem in several countries of the Middle East. For example in 1963 alone, 174 young Iranian qhysicians entered the hospitals of the United States as interns. For the same period. over 500 other Iranian doctors were in American hospitals in the various years of residency training. Obviously, there is migration for training and migration for future work. But for all practical purposes it is very hard to separate the two. If a newly graduated physician from a developing country undertakes a ten year course in a highly specielized field that has no application to the problems of his own country, he is essentially as much of a loss to his country as the professional who actually migrates.

In 1964 among foreign medical graduates examined for licensure in the United States, there were 79 from Turkey, 66 from Iran, 38 from Egypt and over30 from other countries of the Middle East. These amount to over 10 percent of the total Middle East medical graduates.

In closing I would like to conclude that the need of the Middle East for health manpower is great. It needs a serions and foresighted attention by both administrators and educators.

The needs of each country should be planned accordind to local circumstances and Prevailing health conditions. The standards and levels of education used in developed conutries cannot be simply transplanted and adapted in our countries. A critical reconsideration should be given either to the type and categories of personnel (such as emphasizing auxiliary health workers) or experiment on a new way of utilization of medical manpower, of which the new venture in Iran is a good example, viz. the creation of the Health Corps, in which graduate doctors and technicians serve in rural areas as part of their military service_a venture which is proving to be effective and successsful.

I hope that in spite of the limtted facts and figures available for an analysis of the situation, I have been able to illustrate the present status of health manpower in the region, to demonstrate some points for dlscussion, and to stimulate some thought and concept of a new approach for action.

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