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Workforce Considerations, Training, and Diseases in the Middle East

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KEYWORDS

- Middle East otolaryngology • Global health in the Middle East
- Disease prevalence in the Middle East
- Medical education and training in otolaryngology in the Middle East

KEY POINTS

- Prevalent diseases in the Middle East include the noncommunicable diseases of coronary artery disease, stroke, diabetes, and head and neck cancer (the latter due to the high rates of tobacco usage).
- Health care system capabilities range from struggling economies to high sophistication in developed countries.
- War, conflict, strife, and government instability give rise to great challenges in providing adequate health care in some countries of the Middle East.
- Medical education and training in otolaryngology was previously based on the European system but increasing incorporation of the American system is occurring.
- In some countries, there is great personal risk to physicians caring for patients and to visiting physicians from other countries.

INTRODUCTION AND OVERVIEW OF HEALTH STATUS AND DISEASES IN THE MIDDLE EAST

The Middle East is a complex area of the world, not only demographically but also in the diverse governmental, political, social, religious, financial, and medical contexts. In general, the Middle East is a group of 18 countries in the eastern Mediterranean and Persian Gulf, which includes Egypt in North Africa and Palestine. Turkey and Cyprus

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may be included in discussions of Middle Eastern countries but not always. The US Department of State's Bureau of Near Eastern Affairs includes the following countries, states, or territory in their purview: Palestinian territories, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, and Yemen.[1] Additionally, the League of Arab States has 22 members, and is a cooperative and functional unit acting in the Middle East.

Germane to the health care systems of these countries, several governmental models exist. There are 3 constitutional monarchies (Qatar, Kuwait, and Bahrain), 2 absolute monarchies (Saudi Arabia and Oman), 1 federal monarchy (United Arab Emirates), 1 parliamentary democracy (Israel), 1 theocratic republic (Iran), 1 presidential republic (Syria), 1 parliamentary monarchy (Jordan), and other federal government models of various governments. Thus, there is a broad range of financial capabilities to support effective health care delivery and to develop and sustain an infrastructure for each country's health care system. Language and religious variances within each country and between countries challenges cooperative efforts in health care delivery.

Unlike Europe and the Far East, many countries in the Middle East are, and have been for some time, in a constant state of conflict and combat. The Middle East is the epicenter of global terrorism, and countries such as Iraq, Afghanistan, and Syria have such a burden of trauma cases that limited medical resources are often stretched beyond their limits. Basic services may be minimal, and preventive health in many regions is nonexistent. There are significant challenges to the delivery of health care in hostile and intemperate geographic terrains from desert to mountains. Rural health care in isolated parts of some countries is often rudimentary, provided only by marginally trained lower level health care workers who do the best they can with minimal resources and limited higher echelon support.

Emerging medical services may lack the sophistication and robustness of Western medicine, especially in ambulance and first-responder capabilities. Trauma patients (especially from terrorist attacks) are often transported to a hospital by passing motorists or bystanders. Triage and emergency care resources are often limited to basic lifesaving treatments, and tertiary or specialized care centers are often few and far between. Trauma care is becoming a priority for otolaryngology in the Middle East, driven by injuries due to war and terrorism. Both intrinsic and foreign teaching in the management of head and neck trauma is increasing in training programs across this region.

Alternatively, several countries in the Middle East (eg, Saudi Arabia, United Arab Emirates, Jordan, Israel, Turkey, and Qatar) have quite sophisticated and modern health care systems, typically based on the British system of education and training of physicians and nurses. Resources are plentiful and funding is relatively generous. Medical education and specialty training can be comparable to that of Western medicine, including tertiary academic medical centers where meaningful research is conducted, and the full range of specialty care is provided.

General Health Conditions

Using data from the Global Burden of Diseases, Injuries, and Risk Factor Studies (GBD), heart disease was the number 1 cause of death in the Arab world in 2010, replacing lower respiratory diseases.[2] Risk factors for death included processed foods, hypertension, high body-mass index, diabetes, and hypercholesterolemia. Major depressive disorder, especially in women, and lower back pain, in men, contributed to higher years lived with disability in most of these countries. Road injuries and other occupational risks are more common in those more highly developed countries where transportation and driving are reflective of a more robust economy. Communicable

diseases, such as malaria and diarrhea, still have a concerning prevalence but new public health concerns include noncommunicable diseases, with respect to lifestyle changes.[3] There is concern that the Middle East region "suffers a drastic change from a traditional diet to an industrialized diet,"[4] with the attendant increase in chronic diseases affected by the ingestion of increased preprocessed foods, sugar, and saturated fats, with a reduction of healthier milk, fruits, and vegetables. The long-term effects of these dietary changes on the genome are not yet fully appreciated, but chronic disease prevalence may already be affected.

Communicable and Respiratory Diseases

Additional communicable diseases include hepatitis, human immunodeficiency virus, and the Middle East respiratory syndrome. Of considerable concern to the World Health Organization is that the prevalence of hepatitis C in the Middle East is high, with Egypt reportedly experiencing the highest rate of hepatitis C in the world.[5] This rate may exceed 10%, with inadequate infection control and unscreened blood transfusions as major factors.

Middle East respiratory syndrome is an acute illness caused by the virus Middle East respiratory syndrome coronavirus (MERS-CoV). First reported in Saudi Arabia in 2012, it is said to be unlike other coronaviruses previously found in humans.[6] This respiratory disease is of concern because of the 30% to 40% fatality rate associated with outbreaks. US health care providers traveling to the Arabian Peninsula should maintain a high level of awareness and use personal protective equipment in areas of risk.

There are other respiratory disorders of concern in the Middle East, and they carry a health burden for the population and health care delivery systems: tuberculosis; bacterial, viral, parasitic, and fungal pneumonias; Behçet disease; and complications of chemical warfare. Unique aspects related to respiratory diseases in the Middle East include climate factors in the desert region, cultural habits, and water-pipe smoking, as well as heavy cigarette use.[7]

Head and Neck Cancer

With the high prevalence of smoking, head and neck cancer incidence is increasing. In areas where the health care system is sophisticated, the full range of head and neck cancer therapy is available; otherwise, limitations in cancer care are predictable. There are increasingly positive trends, however, in comprehensive head and neck cancer care, owing in part to broader clinical and educational collaborations among Middle East countries, and with Europe, North America, and international agencies. Furtherance of these collaborations should be a salutary goal of global otolaryngology–head and neck surgery organizations.

High rates of head and neck cancer, particularly oral cavity and oropharynx carcinomas, in the Middle East are due to smoking and chewing tobacco. In a recent epidemiologic report, the prevalence of tobacco smoking in the Middle East and North Africa in male patients over the age of 15 years varies from a low of 15% in Oman to a high of 77% in Yemen, with most other countries in the 30% to 60% range.[8] Female patients were noted to have one-tenth the rate of smoking compared with men. The authors, using established predictions, project that the number of estimated new cases of oral and oropharynx cancers in this region, especially in Egypt, Iran, and Turkey, could double by the year 2030, 4 times the predicted incidence worldwide. A swell in the aging population in these countries (ie, living longer) may be a factor.[9] Reducing high-risk factors such as smoking and use of smokeless tobacco (shammah and qat), and perhaps exploring or mitigating the risks for human papilloma virus

infections, could be effective public health methods to address this projected increase in cancer incidence.[10]

In a report of the Middle East Cancer Consortium (MECC), thyroid cancer contributes 1.5% to 3.80% of all cancers diagnosed annually in the 4 MECC countries studied (Cyprus, Egypt, Israel, and Jordan).[11] Female patients in the regions were found to have twice the incidence of thyroid cancers compared with male patients. Age-standardized incidence rates across the countries ranged from 2.0 in Egypt to 7.5 in Israeli Jews. Egypt, in particular, has a very high incidence of anaplastic thyroid cancer (14%) compared with the other MECC countries and the United States (<3%). Egypt also showed the lowest rate of differentiated thyroid carcinomas (73%) than the other 3 MECC countries studied (90%–94%).[11]

The MECC report also addressed laryngeal carcinomas in the 4 countries studied. Age-standardized incidence rates for laryngeal carcinoma in Israeli Jews, Jordanians, and Egyptians were found to be commensurate with the US Surveillance, Epidemiology, and End Results (SEER) program rates. However, the rate in Israeli Arab male patients (6.0) was higher than comparable US SEER male patients (4.6).[12] The incidence of laryngeal cancer in female patients in the studied populations was quite low. Because alcohol consumption is considered to be minimal in predominately Muslim Middle Eastern countries, the epidemiologic preventative focus is being placed on reducing smoking in the at-risk populations.

WORKFORCE, EDUCATION, AND TRAINING IN OTOLARYNGOLOGY–HEAD AND NECK SURGERY IN THE MIDDLE EAST

The modern Middle East represents a vital and varied combination of ancient and ultramodern, densely populated and vast spaces, of countries and cultures influencing and being influenced by the cultural and economic effects of globalization while honoring tradition. This is as true in medicine as it is in other fields. Traditions of medical education and practice are both long and proud in the region. From Avicenna through Maimonides and beyond, contributions of physicians and surgeons from this region have both preserved and advanced the understanding of medicine and of the philosophic implications if its practice.

It is impossible to fully understand the modern medical systems in the varied countries of the region without delving into a bit of history. During World War I, the Ottoman Empire entered the conflict on the side of the Central Powers: Germany and the Austro-Hungarian Empire. As the war concluded, several European powers maintained colonial empires, even as the Ottoman Empire dissolved. Much can be written about the ethics of empire and governance of people and cultures by outside powers, though that is beyond the scope of this article. One product of European influence in the Middle East was the Sykes-Picot Agreement.[13] In this agreement, the Triple Entente (England, France, and Russia) agreed to separate spheres of influence within what was then called Asia-Minor, without significant consideration of local cultures and populations. The resulting English mandate would govern much of modern Iraq, Jordan, and modern Israel, whereas the French mandate would govern northern Iraq, Syria, Lebanon, and eastern Turkey. The national boundaries later established in the region largely ignored cultural, tribal, and sectarian affiliations, setting the stage for much of the conflict resulting in this region in the subsequent century.

The university level educational systems established in the region were largely modeled on those present in the country claiming mandate within that geography. With increasing American influence in the region following World War II, there has been a growing acceptance of the American medical educational model as well. As

countries in the region sought to speed modernization, many made university education available at low or no cost. Because of the prestige of a medical degree, there is considerable familial and societal pressure for students to select medicine, which is an undergraduate course of study in the British system (A. Atef, personal communication, 2017). Resulting rates of medical degree holders range widely from 0.311 per 1000 population in Yemen to 3.62 per 1000 in Israel. This compares with 2.55 in the US and 2.48 in Canada.[14]

Although several countries within the region boast impressive Graduate Medical Education opportunities, countries may lack a coordinated national health policy that aligns undergraduate and graduate medical education.[15] Therefore, many trainees elect to receive training outside the region. This is true of otolaryngology, as it is for other medical and surgical specialties. As early as 1994, articles appeared encouraging an increase in graduate-level otolaryngology training within the Arab world.[16] One limitation to surgical training is inherited traditions that prohibit cadaveric dissection (A. Atef, personal communication, 2017). In recent years, simulation has been used to bridge this gap.[17] Another confounding issue with practice is that no single standard for credentialing exists. Whereas many countries recognize the Arab Boards, many recognize local boards, PhD degrees, and certifying examinations from Europe, England, or America.

Two major challenges to delivery of high-quality otolaryngology care throughout the Middle East are large populations and political instability. Although this affords trainees a wealth of training opportunity, demand for otolaryngology services far outstrips the supply available in many communities. In such situations, regional academic otolaryngology faculty members often care for the flood of patients with extremely advanced disease. Faculty members working in these centers are forced to be creative to meet specific surgical challenges and system demands. In recent years, both armed conflict and political change following the Arab Spring uprising have increased challenges to providing effective graduate and continuing medical education in many Middle Eastern Countries. Not only has funding for medical centers and faculty been threatened and inconsistent but also, for a time, outside speakers were reluctant to participate in regional conferences because of personal security concerns. Tightening borders in Europe and the United States increases challenges to otolaryngologists who would otherwise attend conferences in these regions. Especially needed in the Middle East are more female otolaryngologists, reflective of the general requirement for female physicians across the world but especially in the male-dominant Middle East medical profession; however, advances are being made to better reflect Western gender balances in specialty training.

Potential solutions to these problems are many. Regional educational conferences continue to showcase both the vast surgical skills within the region and an equally vast desire to continue to advance practice. These conferences are attended by otolaryngologists from the Middle East and the West alike. Professional organizations such as the American Academy of Otolaryngology–Head and Neck Surgery and Foundation continue to work toward increasing access to high-quality educational opportunities through sponsoring of joint meetings, travel grants and scholarships, and International Corresponding Society relationships. In those regions with high-speed Internet access, platforms for delivery of synchronous and asynchronous educational content will continue to expand and improve the ability of otolaryngologists throughout the Middle East to participate in training opportunities without the requirements of travel.

In a region justly proud of its culture and contributions to medicine, the ingenuity and drive of otolaryngologists to continue to teach and to create opportunity for their own advancement will certainly meet the present challenges.

SUMMARY

The challenges for health care delivery in Middle Eastern countries are many, varied, and complex. Chronic diseases are on the increase and there is a high burden of disease, especially with pulmonary infections, head and neck cancers, and trauma, for which assistance from international organizations and professionals is needed. It must be emphasized, however, that even in the face of constant strife and conflict and very limited resources in some countries, the dedication of health care providers is exemplary. These professionals, including otolaryngologist surgeons, care for patients under often dangerous conditions and continue to do so in the face of their own potential peril. This dedication is worthy of praise and recognition.

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