Clinical uses of e-mail

Sir,

We are truly in an era of information and communication. Now more than ever, communicating and moving vast amounts of information quickly across great distances is one of our most vital needs. From small one-person entrepreneurial efforts, to the largest of corporations, more and more professional people are discovering that the only way to be successful in this century and beyond is to realize that technology is advancing at a break-neck pace and they must somehow keep up. Likewise, doctors and researchers from all corners of the earth are acknowledging this fact. Immediate access to the work of colleagues and a “virtual” library of millions of volumes and thousands of papers affords them the ability to incorporate a body of knowledge heretofore unthinkable. Groups of doctors and researchers can now conduct interactive conferences and discussions with each other, paying no heed to physical location; the possibilities are endless. This article brings attention to some critical uses of e-mail services for doctors to increase their professional skills and patient care. The Internet is primarily a communications medium and one of its basic tools is e-mail. We have at our fingertips the ability to talk in "real-time" with someone who is far away, or send a 2,000-word discussion story to a group of people who will critique and analyze it for improvement of their knowledge and learning. Electronic mail (e-mail) offers the potential for near-instantaneous transfer of messages and files across thousands of miles. The same message can be sent simultaneously to multiple recipients and forwarded without retyping. Messages can be sent or read at any time, eliminating "telephone tag", and, because the system is paperless, lost, blurred, and incomplete, facsimile transmissions can be minimized. Additionally, e-mail is less expensive than overnight letter services or long distance faxes. E-mail address.

Electronic mail is hinged around the concept of an address; getting where you want to go can often be one of the more difficult aspects of using networks. If someone were to ask for a home address, they would probably expect a street, apartment, city, state, and zip code. That’s all the information the post office needs to deliver mail in a reasonably speedy fashion. Likewise, computer addresses have a structure to them. The general form is: a person’s e-mail address on a computer: user@somewhere.domain and a computer’s name: somewhere.domain. The user portion is usually the person’s account name on the system, though it doesn’t have to be, somewhere.domain tells you the name of a system or location, and what kind of organization it is. Your e-mail address provides all of the information required to get a message to you from anywhere in the world: E-mail addresses usually contains @, an "at" – sign. To reach John David on the system south.America.org, one would address the mail as jd@south.america.org. Some other symbols are also used in e-mail addresses such as ‘!’ and ‘%’ for more Unix based old servers. Although most of the addresses correspond to actual people, many of them are other things: Mailing lists: which send a message to whole group of people. Mail server robots: which automatically send back a response. Gateways to other kinds of services: such as Usenet (or Netnews) which is a bulletin board system. Each item someone "posts" to Netnews is passed from system to system until the message eventually goes to all the Usenet hosts in the world. The amount of news and information that flows this way is enormous – close to a gigabyte per day and even growing. To make it easier the items are tagged with topics known as newsgroups. Many medical web sites allow subscribing for medical news groups for selected topics of interest. Some good sites are www.medwebplus.com, www.medwebplus.com, www.medwebplus.com, www.netdoctors.co.uk/news/index, www.health-news.co.uk, www.eurealert.com, and so forth.

E-mail in the clinical setting.

In the clinical setting, e-mail holds out great promise. At the doctor-to-doctor interface there is evidence that e-mail is being used regularly and to great effect. Many Internet discussion lists for example have good numbers of over 1000 subscribers. Research undertaken by Singarella et al² concluded that health professionals reported ‘a significant positive impact in the use of e-mail... relative to
other forms of communication (for example, paper, phone). Internet conferences and computer e-mail-assisted groups are innovative means of offering health and mental health services. There are many articles that have reviewed the practice literature on the use of technology-based e-mail groups and presented the results of a survey of groups practitioners that focused on their experiences with e-mail discussion groups, their knowledge and comfort levels with these groups, and their perspectives on the benefits and problems of using technology in e-mail discussion groups. It is clearly indicated that the benefits of using this technology included increased accessibility, convenience, and anonymity.

E-mail can also help in the diagnostic fields of medicine. Exchange of pathology and radiology images for consultations and discussion can help narrow down the differential diagnosis to more specific and accurate ones, as this will make more expert opinions available within no time and at least cost. The newly evolved JPEG compression process shrinks the image files from a megabyte to one-tenth that size and makes the process of transferring images by e-mail much easier. JPEG files are inexpensive to create, manipulate, and archive, even on slow, archaic computer networks. We practically demonstrated this hypothesis in the Kingdom of Saudi Arabia (KSA) network system, and even with a slower computer such as Pentium I, it worked effectively. This means low-paid physicians in other countries could acquire or send images from any other country like the United States of America (USA) quickly, diagnose them properly, and relay their findings back to the USA via e-mail. Once the legal issues were resolved – and this is nothing more than forward-looking speculation – there would be no scientific or clinical reason why a well-trained pathologist in KSA could not stare deeply into a 14-inch computer screen and do just as good a job as a colleague in the USA. The time difference between the 2 countries might even be an advantage, allowing 24-hour coverage. JPEG images are now considered an acceptable format for exchanging pathology images.

In the doctor-patient relationship the benefits of using e-mail can be equally strong. Doctors and their patients can communicate with each other at a time that is convenient to each other. Even better, a record of the exchange can be kept, and with the widespread use of e-mail, it means that this is a workable technology. The Internet also enables doctor-patient relationships to extend beyond the traditional geographic boundaries. A growing number of online professionals are happy to offer advice and information to anyone who contacts them over the Internet. Though these ‘virtual providers’ cannot, for example, undertake a physical examination, prescribe drugs or offer any follow-up care, a recent edition of the Ferguson Report (http://www.fergusonreport.com/articles/tfr07-01.htm) concluded that these doctors are acting as a valuable resource for patients. Many online patients say that they are more comfortable exchanging e-mail with an online doctor they have never met than discussing their medical concerns with their own physicians. Indeed, a number of medical unions and associations have expressed concerns about the use of clinical e-mail in day-to-day practice and have produced best practice guidelines for managing doctor-patient exchanges over the Internet. E-mail also represents another avenue for enquiry, which in addition to phone (mobile and fixed line), fax and letters takes up time.

Electronic mail has become an everyday part of more people’s lives – and an important part of the way business is carried out. However, use of e-mail communication with patients creates a new set of potential dangers that doctors must consider; What defines the doctor-patient relationship? Should diagnoses be made and delivered via e-mail? How can privacy and confidentiality be maintained? Can marketing be carried out tastefully via e-mail? Many authors have addressed each of these issues from a medico-legal perspective and offered advice on professional and ethical ways to communicate with patients via e-mail. In conclusion this article has thrown light on the benefits of the uses of e-mail in a clinical setting. It will explode and grow more once hospital staff and doctors are encouraged to have their own e-mail and web access and develop their own websites. They should place their e-mail contact addresses on their visiting cards and pads. This is not crystal ball gazing; all clinical units having their own websites will become the norm in the not too distant future. We should try to adopt these advances as fast as possible because they are going to be standards of practice very soon.

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Antiphospholipid antibodies associated with different presentations at a University Hospital

Sir,

Antiphospholipid antibody syndrome (APS) is characterized by antibodies directed against either phospholipid or plasma proteins bound to anionic phospholipids. Antiphospholipid antibody syndrome is considered to be present if one of the following clinical criteria and at least one of the following laboratory criteria are present.\textsuperscript{1,2} Clinical criteria include one or more episodes of venous, arterial or small vessel thrombosis, recurrent abortions, and thrombocytopenia. Laboratory criteria include the presence of Immunoglobulin (Ig) G, IgM, or both, anticardiolipin antibody using an enzyme-linked immunosorbent assay (ELISA).\textsuperscript{3} This disorder is referred to as the primary APS when it occurs alone; or it can also be found in association with systemic lupus erythematosus (SLE), some rheumatologic diseases, certain infections and drugs. The purpose of this study was to assess the association of antiphospholipid antibodies (APA) with different clinical presentations.

King Abdulaziz University Hospital (KAUH) is a governmental teaching hospital providing health care to a multinational population of mixed socioeconomic status. A total of 40 positive cardiolipin antibodies were collected in the immunology laboratory at KAUH over the 2 year period between January 2000 and December 2001. Cardiolipin antibodies, either IgG or IgM, were measured by Varelisa standardized ELISA for β2 - glycoprotein 1 dependent anticardiolipin antibodies, lupus anticoagulant activity, or both. Clinical notes of patients with positive cardiolipin antibodies were reviewed retrospectively. Relevant data such as patients’ age, sex, and nationality were included. Various clinical presentations such as SLE or lupus nephritis were included. The diagnosis of SLE was made according to The American Rheumatism Association.\textsuperscript{2} Cases of venous and arterial thrombosis were accepted only if they were confirmed radiologically by Doppler ultrasound, venogram in cases of deep vein thrombosis (DVT) or by angiogram in cases of arterial thrombosis. Brain Computerized Tomogram (CT) or Magnetic Resonance Imaging (MRI) examinations were accepted as confirmatory evidence of infraction. Patients with known causes of recurrent abortion were excluded (bicornuate uterus, incompetent cervix, diabetes, toxoplasma). Statistical analysis was carried out using the Statistical Package for Social Science (SPSS 7.5). Group results were presented as median ± standard deviation (SD) or as a percentage. Chi-square was used appropriately. Results were considered as significant if the p value was less than 0.05.

A total of 40 patients had positive cardiolipin antibodies either IgG or IgM. Median age at presentation was 29.5 (+11.32 SD) years. Patients included in the study were 38 (95%) females and 2 (5%) males with F:M ratio of 19:1. Twenty-four (60%) was Saudi while 16 (40%) were non-Saudis. Table \textsuperscript{1} illustrates different clinical presentations of APS. Repeated abortion was the most common clinical presentations especially in Saudi females, followed by SLE with or without renal involvement. Lupus nephritis was seen in 12.5% of SLE patients in whom the diagnosis was confirmed by renal biopsy and 12.5% of patients had repeated DVT at different sites. Three patients with DVT had pulmonary embolism, which was fatal in one. One patient with cryoglobulemia with positive APA developed axillary and mesenteric artery thrombosis, which was diagnosed by angiogram. Another patient from the Asian subcontinent presented with vasculitic malar

<table>
<thead>
<tr>
<th>Clinical presentations</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep vein thrombosis</td>
<td>5</td>
<td>(12.5)</td>
</tr>
<tr>
<td>Repeated abortion</td>
<td>15</td>
<td>(37.5)</td>
</tr>
<tr>
<td>SLE</td>
<td>10</td>
<td>(25)</td>
</tr>
<tr>
<td>Lupus nephritis</td>
<td>5</td>
<td>(12.5)</td>
</tr>
<tr>
<td>CVA</td>
<td>3</td>
<td>(7.5)</td>
</tr>
<tr>
<td>Cryoglobulemia</td>
<td>1</td>
<td>(2.5)</td>
</tr>
<tr>
<td>Leprosy</td>
<td>1</td>
<td>(2.5)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

APA - antiphospholipid antibodies; N - number; SLE - systemic lupus erythematosus; CVA - cardiovascular accident
rash with positive APA, and was later proved to have leprosy on skin biopsy. Repeated abortion was the most common clinical presentation with APS in our group with p value of <0.004, which is statistically significant. However correlation between the types of antibody titre (IgG or IgM) and clinical features was not attempted, as the sample was too small for significant result.

Antiphospholipid antibody syndrome has been described in middle and young age groups mainly due to the prevalence of SLE in this age group. This is in comparison to our study where 95% were female with average age of 30 years with 37.5% of them having SLE with or without lupus nephritis. Love and Santoro in their analysis of over 1000 patients with SLE found an average prevalence of 44% of anticardiolipin antibody, which is similar to our result (37.5%). There is a strong association between the presence of APA and recurrent abortion especially in Saudi females as reported in the study of Malabarey et al from Saudi Arabia. The high number of Saudi females in our study with recurrent abortion was mainly due to the policy of KAUH where non-Saudis have no access to antenatal clinics. In our study the definition of repeated abortion was considered when there was history of 3 or more consecutive fetal losses with other causes of abortion excluded such as congenital anomalies or uterine abnormalities. The reasons for recurrent abortion in patients with APA are due to placental vascular thrombosis. Statistically significant association exists between APA and history of recurrent venous or arterial thrombotic complications, as shown in our study. Venous thrombosis occurred mainly in lower limbs and in one patient was associated with fatal pulmonary embolism. Arterial thrombi occurred most often in the cerebral arteries, with strokes and transient ischemic attacks as clinical presentation in 3 patients followed by, coronary arteries, cerebral venous sinus, splenic veins, renal artery, renal vein, adrenal vessels, cutaneous vessels and a vascular necrosis of bone. One patient had axillary as well as mesenteric arterial infarction due to cryoglobulemia with APA. Antiphospholipid antibodies have been associated with many cutaneous abnormalities including livedo reticularis, livedoid vasculitis, cutaneous necrosis and infarctions, thrombophlebitis, gangrene of digits, skin ulcerations, lesions resembling vasculitis (nodules, macules) subungual splinter hemorrhages and Dego’s disease. Antiphospholipid antibodies with vasculities was described in one patient who was diagnosed to have leprosy on skin biopsy. In our study there was no association of APA with thrombocytopenia although such association is widely quoted and has been demonstrated in various studies. In conclusion, this preliminary small study of 40 patients showed strong association of APS with recurrent abortion, SLE, venous and arterial thrombosis. However no association with thrombocytopenia has been reported in our study, probably due to the small number of patients.

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References


Epilepsy and Ramadan fasting

Sir,

Ramadan fasting is one of the 5 pillars of Islam. Fasting is obligatory for all Muslims with normal health state. Fasting extends from dawn to sunset. The period of fasting varies from season to season and from country to country. During the summer months, fasting time period may be as long as 16 hours or more, while in winter month’s reach up to 10-12 hours. During the fasting period, people are not allowed to receive food and water or even any sort of medication. During Ramadan, fasting people tend to alter their dietary habits and type of food that they eat, they eat their main meal at evening, and...
choose a special type of food rich with fat and carbohydrate. Even though the tissues preferentially use carbohydrate for energy over both fat and protein, the quantity of carbohydrate stores in the body is only a few hundred grams (mainly glycogen in the liver and muscles), and it can supply the energy required for body function for perhaps a day. Therefore, except for the first few hours of starvation, the major effects are progressive depletion of fat and protein. Ramadan fasting has been reported to produce negligible effect on normal body physiology. Physicians caring for Muslim patients are frequently consulted about various aspects of Ramadan fasting. The effect of Ramadan fasting on patients with epilepsy and its control has not been fully studied as far as we know. Physicians usually do not advise patients with epilepsy to fast during Ramadan as it is thought that hypoglycemia and electrolyte disturbance may precipitate seizure.

This prospective observational study was designed to assess the outcome of fasting in those patients who were volunteers to fast during Ramadan. Thirty-five epileptic patients, 15 females and 20 males were studied in the neurological clinic at Yarmouk Teaching Hospital, Baghdad, Iraq for 3 consecutive years (1998, 1999, 2000). The mean body mass index was 27.23 for females and 24.46 for male before the study and 26.48, 24.12 one week after. The average daily calories range between 2400-2800 Kcal. The patients were subjected to a full history regarding their seizures, drug history and other illnesses. Complete systematic and neurological examination was carried out. Electroencephalography (EEG) was carried out during the month before Ramadan fasting. All the patients had brain computerized tomography scan. The results of patients who were able to continue Ramadan fasting is summarized in Table 1 and indicates only those with normal examination and EEG were able to continue the fasting. Biochemical assessment of blood sugar, urea, serum sodium, potassium, calcium, phosphorus and liver function test were carried out for all the patients. The patients were willing to fast during Ramadan inspite of our advice and explanation regarding the effect of fasting on their seizure control. The patients were followed during the fasting month by weekly visit to the neurological clinic and thereafter, the patients resumed their previous program of regular visits. The patients continuously use the same antiepileptic (same dose), with modulation to receive their drug by 2-divided dose after meals. The period of fasting extends from sunrise to sunset, and the period differs from season to season, fasting may last from 8 hours to 16 hours or more. The study was conducted in 3 consecutive years in which the period of fasting was around 12 hours and in the winter months. Healthy individuals adapt adequately with fasting with mild acceptable variations in their health state and biochemical parameters as reported by El-Hazmi et al. These variations may be significant with prolonged fasting, however, these variation may have considerable effect on patients with epilepsy due to the effect of hypoglycemia and electrolyte disturbance. The patients had normal blood glucose, electrolytes, urea and liver function test, which was carried out before fasting and once during fasting. The body mass indexes of patients were only slightly reduced. This is explained on the basis that the patient receives adequate calories, which leads to negligible effects on body weight. The level of ketone bodies may increase during fasting. The ketogenic diet is an alternative therapy used to control intractable seizures despite its use as a therapy for refractory epilepsy for more than 75 years, the mechanism of action of the ketogenic diet is unclear and the optimal indications for its clinical use are incompletely defined. Recent studies are beginning to examine the longer-term effects of ketogenic diet and its role in epileptogenesis. However, we have not found any work which assesses the level of ketone bodies in those who fast during Ramadan. The best result was observed in those who had normal neurological examination and normal EEG records was carried out before fasting. This may be explain on bases that those patients had low epileptic threshold.

<table>
<thead>
<tr>
<th>Patients</th>
<th>Failure to fast Ramadan</th>
<th>Successed to fast Ramadan</th>
<th>Total</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examination</td>
<td>Normal</td>
<td>10 (58.80)</td>
<td>17 (94.40)</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Abnormal</td>
<td>7 (41.20)</td>
<td>1 (5.60)</td>
<td>8</td>
</tr>
<tr>
<td>N of seizure</td>
<td>0</td>
<td>9 (52.90)</td>
<td>9 (50.00)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>1-2</td>
<td>4 (23.50)</td>
<td>6 (33.30)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>&gt;2</td>
<td>4 (23.50)</td>
<td>3 (16.70)</td>
<td>7</td>
</tr>
<tr>
<td>EEG</td>
<td>Normal</td>
<td>3 (17.65)</td>
<td>11 (61.10)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Abnormal</td>
<td>14 (82.35)</td>
<td>7 (38.90)</td>
<td>21</td>
</tr>
<tr>
<td>CT scan</td>
<td>Normal</td>
<td>12 (6.60)</td>
<td>17 (94.40)</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Abnormal</td>
<td>5 (29.40)</td>
<td>1 (5.60)</td>
<td>6</td>
</tr>
<tr>
<td>Treatment</td>
<td>Carbamazepine</td>
<td>7 (41.20)</td>
<td>13 (72.20)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Phenytoin</td>
<td>5 (29.40)</td>
<td>3 (16.70)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Valprose acid</td>
<td>5 (29.40)</td>
<td>2 (11.10)</td>
<td>7</td>
</tr>
</tbody>
</table>

* - significant p-value, N - number, EEG - electroencephalography, CT - computerized tomography.
Monitoring of serum antiepileptic drug levels can be very useful but this laboratory facility was not available. There are no other studies to compare the results with and this study is observational and needs to be followed by multicenter work to investigate further this important subject.

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References

7. Thio LL, Wong M, Yamada KA. Keton bodies do not directly alter excitatory or inhibitory hippocampal synaptic