

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.<sup>1</sup> 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%).<sup>2</sup> 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.<sup>4</sup> 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.<sup>5,6</sup> 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<sup>5</sup> 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.<sup>7,8</sup> 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 vacuolites was described in one patient who was diagnosed to have leprosy on skin biopsy.<sup>2,3</sup> 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.

**Faiza A. Qari**

*Department of Medicine*

*King Abdul-Aziz University Hospital*

*PO Box 13042*

*Jeddah*

*Kingdom of Saudi Arabia*

## References

2. Wiedemann FJ, Mayr A, Schobersberger W, Mutz N. Definition and classification of the Antiphospholipid antibody syndrome. *J Cardiovasc Surg* 1999; 40: 919-920.
- Love PE, Santoro SA. Antiphospholipid antibodies: Anticardiolipin antibodies and lupus anticoagulant in systemic Lupus erythematosus (SLE) and in non SLE disorders. *Ann Intern Med* 1990; 112: 882-898.
- Shoenfeld Y, Blank M, Fishman P. Antiphospholipid syndrome: from the laboratory bench to the patient's bedside. *Lupus* 1995; 4: Suppl 1: S33 -S36.
- Malabarey T, Gader AG, Al-Momen A, Al-Balla S, Hulailah A, Sallam M. Antiphospholipid antibodies in systemic lupus erythematosus. *Saudi Med J* 1998; 19: 566-570.
- Grmica-Ihle E, Schossler W. Antiphospholipid syndrome. *Int Arch Allergy Immunol* 2000; 123: 67-76.
- De-Wolf F, Carreras LO, Moerman P. Decidual vasculopathy and extensive placental infarction in a patient with repeated thrombembolic accidents, recurrent fetal loss, and a lupus anticoagulant. *Am J Obstet Gynecol* 1982; 142: 829-832.
- Tan EM, Cohen AS, Fries JF. The 1982 revised criteria for the classification of systemic lupus erythematosus. *Am J Med* 1982; 25: 1271-1277.
- Ginsberg JS, Wells PS, Brill Edwards P. Antiphospholipid antibodies and venous thrombembolism. *Blood* 1995; 86: 3685-3689.

## 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.<sup>1</sup> 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.<sup>2-4</sup> Ramadan fasting has been reported to produce negligible effect on normal body physiology.<sup>5</sup> 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.<sup>6</sup>

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 (ECG) 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

**Table 1** - Data of 35 epileptic patients assessed for allowing to fast during Ramadan.

Patients		Failure to fast Ramadan N (%)	Successed to fast Ramadan N (%)	Total	P-value
Examination	Normal Abnormal	10 (58.80) 7 (41.20)	17 (94.40) 1 (5.60)	<b>27</b> <b>8</b>	0.035*
N of seizure per year before study	0 1-2 >2	9 (52.90) 4 (23.50) 4 (23.50)	9 (50.00) 6 (33.30) 3 (16.70)	<b>18</b> <b>10</b> <b>7</b>	0.773*
EEG	Normal Abnormal	3 (17.65) 14 (82.35)	11 (61.10) 7 (38.90)	<b>14</b> <b>21</b>	0.009*
CT scan	Normal Abnormal	12 (0.60) 5 (29.40)	17 (94.40) 1 (5.60)	<b>29</b> <b>6</b>	0.155
Treatment	Carbamazepine Phenytoin Valproic acid	7 (41.20) 5 (29.40) 5 (29.40)	13 (72.20) 3 (16.70) 2 (11.10)	<b>20</b> <b>8</b> <b>7</b>	0.169

\* - significant p-value, N - number,  
EEG - electroencephalography,  
CT - computerized tomography.

adapt adequately with fasting with mild acceptable variations in their health state and biochemical parameters as reported by El-Hazmi et al.<sup>4</sup> 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.<sup>6</sup> 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 keton bodies may increase during fasting.<sup>4</sup> 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.<sup>7,8</sup> However, we have not found any work which assesses the level of keton 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.

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.

**Akram M. Al-Mahdawi**  
College of Medicine  
Al-Mustansyria University  
Baghdad, Iraq

### References

1. The Holy Quran S11 section 23: 182-183.
2. Aslam M, Assad A. Drug regimes and fasting during Ramadan: A survey in Kuwait. *Public Health* 1986; 100: 49-53.
3. Awad R. The fast of Ramadan. *BMJ* 1992; 304: 1247.
4. El-Hazmi MAF, Al-faleh EZ, Al-Mofehih I. Effect of Ramadan fasting on value of hematological and biochemical parameters. *Saudi Med J* 1987; 8: 171-176.
5. Scott JT, McCalum FM, Halloway VP. Starvation, ketosis and uric acid secretion. *Clin Sci* 1964; 27: 209-221.
6. Cunningham JJ. Introduction to nutritional physiology. In: Stickley GF, editor. Philadelphia (PA): Lippincott-Raven; 1983.
7. Thio LL, Wong M, Yamada KA. Keton bodies do not directly alter excitatory or inhibitory hippocampal synaptic