

Care of Diabetic Pilgrims

Hiba AL-Amodi¹, Abeer A AL-refai^{1, 2}

Department of Biochemistry, Faculty of Medicine- Umm-Al Qura University (UQU) 1

Department of Biochemistry, Faculty of Medicine, Menoufia University²

Abstract

Hajj “pilgrimage” is the fifth pillar of Islam. It is one of the largest mass gatherings in the world. During the Hajj event, which takes place in the month of Zulhijjah (12th month of Islamic Calendar), more than 2.5 million people gather from 180 countries in the Holy City of Makkah, Kingdom of Saudi Arabia (KSA). Moreover, a large proportion of pilgrims are elderly and from south Asian origin with a high prevalence of diabetes. Hajj is an arduous and physically challenging event. During Hajj the pilgrims have to change their normal routine as they need to travel through places where the geography, weather, diet and habits are different. therefore, diabetics, who depend on a stable routine would predictably be significantly affected. One observational study reported a diabetes prevalence of 31% amongst pilgrims, admitted to a tertiary hospital in Makkah during the Hajj season. This may also reflect higher morbidity in diabetic pilgrims. Therefore, health improvement measures for pilgrims with diabetes would go a long way in reducing mortality and morbidity during the Hajj. This article discusses various risk factors, their effects on diabetes and their managements.

Introduction

Hajj (pilgrimage) is the annual religious event taking place in Makkah, Saudi Arabia. It is one of the largest human gatherings in the world; when more than 2.5 million Muslims gather from >183 countries each year¹. Hajj is considered the hardest among the other Islamic rituals. A significant number of pilgrims are elderly and may suffer from chronic medical conditions such as diabetes mellitus, which may be exacerbated during Hajj². The Hajj in 2005 hosted around 170,000 people with diabetes with a reported prevalence of 21% amongst travelers from France³. Also, pilgrims from the UK are of south Asian descent, with a diabetes prevalence of 14%⁴. Moreover, an observational study reported a diabetes mellitus prevalence of 31% amongst pilgrims admitted to a tertiary hospital in Makkah during the Hajj season⁵. During Hajj, a lot of changes in the person’s life (e.g. geography, weather, diet and physical activities), would significantly affect medical conditions, such as diabetes mellitus which depend on a stable routine⁶. Diabetes has been reported as a leading cause of morbidity and

mortality during Hajj⁷. Thus people with diabetes should have enough time to consider a management plan for their disease.

Objectives

Pilgrims travelling to Makkah include people with chronic diseases particularly diabetes face multiple challenges in the form of acute complications, which could be avoided by adopting appropriate measures. This article evaluated the risk factors faced by diabetic pilgrims and suggested a proper management plan and health education.

Specific clinical diabetic problems during Hajj

People with diabetes mellitus are at a greater risk of illness, as a result of the condition itself, but also due to the altered daily routine and increased physical exertion that may affect diabetes control. There is an increase in physical activity during Hajj which may precipitate patients for the acute complications². Many diabetic pilgrims are admitted to hospitals suffering from diabetic complications, cardiovascular diseases, renal disease, retinopathy or diabetic foot, which may impact their abilities to perform physical activity during the Hajj trip⁸. Intercurrent illness, particularly respiratory infection, lack of adequate supply of medications or monitoring instruments and limited access to specialist medical care facilities may precipitate hyperglycemic crisis such as diabetic ketoacidosis or non ketotic hyperglycemic hyperosmolar state¹. The dangers of hypoglycemia could be fatal while treating diabetic ketoacidosis during Hajj with an insulin drip instead of an infusion pump. Some diabetics suffer from hypoglycemic episodes with no apparent cause⁹. In addition, the loss of normal routine of balanced diet to match a strenuous exercise may result in hypoglycemia especially at times of prayer¹⁰. Diabetic patients are more likely to become dehydrated, develop heat –related illness such as heat exhaustion and heat stroke, but may also develop problems of advanced diabetic complications such as renal disease particularly in diabetic nephropathy¹¹.

Many diabetic patients will have asymptomatic coronary artery disease, such as comorbidities coupled with age and the physical strain associated with the performance of Hajj offer a valid explanation for the recent emergence of cardiovascular diseases as the most important cause of death during Hajj¹².

Diabetic foot was one of the most common causes for admission to a surgical ward over two consecutive years' study¹³. People with diabetes are more likely to get foot infections, blisters and ulcers due to diabetic neuropathy as a result of walking barefoot for long distance. Diabetic patients with peripheral vascular disease are at particularly increased risk often compounded by the problems of poor healing and the increased risk of infections¹⁴. Skin infections [both fungal and bacterial] are recognized

complications of diabetes particularly in patients with poorly controlled diabetes and poor hygiene¹⁵.

Management of people with diabetes intending to perform Hajj

Having diabetes should not stop people from performing Hajj but keeping well during Hajj is a real challenge for patients with diabetes. Thus, pre-hajj screening and intervention during and after returning from hajj has shown to reduce overall mortality and hospitalization rates.

Pre-hajj caring:

People with diabetes mellitus planning to perform pilgrimage (Hajj), should be aware of the possible effects of heat, physical exertion, crowds, and altered routine on their health. They should discuss with their health professionals their fitness for performing hajj and construct a management plan that should focus on optimizing diabetes control, and surveillance and management of complications including foot disease, peripheral neuropathy, peripheral vascular disease, retinopathy and nephropathy, and co-morbid conditions such as hypertension, hyperlipidemia and ischemic heart disease. Additionally diabetic pilgrims should specifically learn about symptoms and signs of hypoglycemia and how they should be treated and to keep their blood glucose level on the hyperglycemic side for the period of Hajj. Also, diabetic pilgrims should be advised to secure enough of their medication, needles, pens, and monitoring instruments¹⁶ (glucometer, test strips and urine ketone sticks to evaluate for ketoacidosis). Emergency kit may be required that include easily accessible carbohydrate sources to counter hypoglycemia and bring the necessary medication in proper containers (preferably with a temperature monitor) for carrying injectables such as insulin, glucagon and glucagon-like peptide-1 receptor agonists with written record, giving the generic names in case further supplies are needed. All the diabetic pilgrims should be advised to wear comfortable protective shoes with daily inspection of feet hygiene. Proper education should encourage the diabetic pilgrims to improve their physical fitness before setting off on the Hajj¹⁷, due to the positive role of exercise and physical activities in improving both morbidity and mortality in diabetic patients and those with cardiovascular diseases¹⁸. It is important to raise the immunization coverage of meningococcal and pneumococcal and haemophilus influenza vaccine to acceptable level to prevent outbreaks¹⁹. Patients should be provided with identifying medical wristbands and medical card that documents the medical history, allergies and medications and a letter detailing the need to carry needles and syringes in their hand luggage. Finally a post-hajj appointment should be arranged.

During hajj

People with diabetes should declare their condition to their Hajj representative and travelling companions and inform them on how to recognize and assist them in case they suffer from hypoglycemia. They should obtain a map of all health-care centers and Saudi Arabian Ministry of Health online Hajj portal, to encourage them to find out the nearest one in case of emergency. To avoid dehydration and hypovolemia, the pilgrims should avoid staying in the sun unnecessarily and should use an umbrella or should stay in the shaded areas as much as possible²⁰. In addition, pilgrims particularly diabetics with nephropathy should be encouraged to drink plenty of sugar-free, caffeine-free drinks and water (at least two liters of water), depending on the weather. In case of diarrhea or vomiting the patient must be presented to a health facility where dehydration can be treated promptly, thus avoiding any deterioration of renal function. They must not be prescribed medication as these might affect renal function adversely²¹. To avoid food poisoning all pilgrims should eat only with their fellow pilgrims (in your own Hajj group) and be advised to drink bottled water. Pilgrims should protect themselves from Inter-current illnesses particularly respiratory infections that influence blood glucose level by keeping good personal hygiene and using facial masks especially in crowded areas to reduce the chance of infection. All pilgrims should regularly monitor their blood glucose as recommended by their doctors with appropriate adjustment, should eat regular meals and take mid-morning snacks to avoid hypoglycemia. If there are any signs or symptoms of hypoglycemia, patients should stop diabetic medication and take glucose tablets or gel, sugared drinks and glucagon injections. Sick patients with diarrhea can substitute solid foods with carbohydrate containing fluids and should never stop insulin or oral anti-diabetic medicines even if they can not tolerate solid food.

Diabetic patients should wear comfortable shoes with good ankle support when permissible and avoid walking long distance barefoot or using opened shoes at all times. When walking in the Mosque, it is permissible to wear leather socks, which will offer some protection. If they develop feet problems they should seek medical advice immediately to prevent worsening of the problems and they should use moisturizers regularly to avoid feet dryness especially after wudu. The diabetic hypertensive patients should also be advised to either self-monitor or go to the country health mission and check their blood pressure regularly and adjust the antihypertensive dose accordingly. Moreover, they should be advised not to share their personal items with others, and to avoid contact with infected person and maintain a good personal hygiene²².

After hajj:

Post-hajj consultation should assess the general condition with focus on either pre-existing or new complications particularly diabetic foot. Also, this appointment should focus on medication changes compared to pre-hajj plan.

Conclusions

Hajj is considered a real challenge for patients with diabetes mellitus, for their doctors and attendants (or companions). However, keeping pilgrims in a healthy shape during hajj is one of the main tasks of health professionals, which will assist them in; evaluating the pre-hajj plans, hajj management and intervention and improve health education.

Finally, Saudi government represented by the Ministry of Hajj in collaboration with the Ministry of Health make great efforts in maintaining the health of the pilgrims and the reduction of the spread of epidemics. This is achieved through yearly updated requirements and recommendations according to the international epidemiology situation.

The following requirements and recommendations issued by Saudi government for pilgrims intending to perform Hajj 2015 (1436H) is an example of these efforts:

- Required vaccines “according to the country” must be met before issuing entry visa for Hajj or Umrah
- The Saudi Ministry of Health recommends that elderly people, pregnant women, children those suffering from chronic diseases (e.g. heart diseases, kidney diseases, respiratory diseases and diabetes), and persons with immune deficiency (congenital and acquired) and tumors to postpone the performance of Hajj and Umrah for their own safety.
- The ministry also advises all pilgrims to comply with health guidelines to curb the spread of respiratory diseases.
- The implementation of wide-scale health education programs in pilgrims’ countries and at the Hajj sites. The programs deal with health precautions to be taken, particularly in case of sun strokes and contagious diseases. Prevention methods are also highlighted.
- To mitigate the risk of heat exposure during this journey, the government provides complimentary water distributed from refrigerated trucks, more air conditioned sites (tents at Mina), and optional performance of rituals at non peak hours (not mid-day) is encouraged

- The hospitals and health centers in and around the holy sites are adequately staffed and equipped for the large gathering. The medical facilities offer high quality of care, and services are offered free to pilgrims.

References:

- Alsafadi H and Goodwin W, Syed A. Diabetes care during Hajj. *Clin Med* 2011;11:218-21.
- Ahmed, A.M. Care of diabetic patients on the Haj. *Diabetes International* 2002.
- Gautret P, Gaillard C, Soula G, Delmont J, Brouqui P, Parola P. Pilgrims from Marseille, France, to Mecca: demographics and vaccination status. *J Travel Med.* 2007;14:132-3.
- Holman N, Forouhi NG, Goyder E, Wild SH. The Association of Public Health Observatories (APHO) Diabetes Prevalence Model: estimates of total diabetes prevalence for England, 2010-2030. *Diabet Med.* 2011;28:575-82.
- Khan NA, Ishag AM, Ahmad MS, El-Sayed FM, Bachal ZA, Abbas TG. Pattern of medical diseases and determinants of prognosis of hospitalization during 2005 Muslim pilgrimage Hajj in a tertiary care hospital. A prospective cohort study. *Saudi Med J.* 2006;27:1373-80.
- Al-Turki A. general guidelines for people with diabetes intending to perform Haj. *IDF Bulletin* 1998;43:25–70.
- Satman I, Yilmaz T, Sengul A, Salman S, Salman F, Uygur S, et al. Population-based study of diabetes and risk characteristics in Turkey: Results of the turkish diabetes epidemiology study (TURDEP). *Diabetes Care* 2002;25:1551-6.
- Alzahrani AG, Choudhry AJ, Al Mazroa MA, Turkistani AH, Nouman GS, et al. (2012) Pattern of diseases among visitors to Mina health centers during the Hajj season, 1429 H (2008 G). *J Infect Public Health.* 5: 22-34.
- Khan LA. Insulin drip can be dangerous. *Saudi Med J* 2002; 22: 76.
- Sarosh A. Khan, Abdul R. Bhat, and Latif A. Khan. *Saudi Med J* 2002; Vol. 23 (12)
- Madani Tj, Ghabrah TM, Al-Hedaithy MA et al. Causes of hospitalizations of pilgrims in the Hajj season of the Islamic year 1423(2003). *Ann Saudi* 2007;27:101–5.
- AL SHIMEMERI. CARDIOVASCULAR DISEASE IN HAJJ PILGRIMS. *J Saudi Heart Assoc* 2012;24:123–127

- Al-Salamah SM. General Surgical problems encountered in the Hajj pilgrims. *Saudi Med J* 2005;26:290–2.
- Al-Qattan MM. The ‘Friday Mass’ burns of the feet in Saudi Arabia. *Burns* 2000;26:102–5.
- Samdani AJ. Spectrum of skin disorders presenting to King Abdul Aziz Hospital during Hajj season-2000. *J Ayub Med Coll Abbottabad*. 2004;16:10-13.
- Gatrad AR, Sheikh A. The Hajj. *BMJ*. 2011;343:d5593.
- Sridhar S, Benkouiten S, Belhouchat K, et al. Foot ailments during Hajj: A short report. *J Epidemiol Glob Health*. 2015;5:291-4.
- Paffenbarger RS, Hale WE. *N Engl J Med* 1975;292(11):545–50.
- Alorzi A, Oskoe S, Pourabbas B, Alborzi S, Astaneh B, Gooya MM, et al. Meningococcal carrier rate before and after hajj pilgrimage: Effect of single dose ciprofloxacin on carriage. *East Mediterr Health J* 2008;14:277-82.
- Khamis NK. Epidemiological pattern of diseases and risk behaviors of pilgrims attending mina hospitals, hajj 1427 h (2007 g). *J Egypt Public Health Assoc* 2008;83:15-33.
- Beshyah SA and Sherif IH. Care for People with Diabetes during The Moslem Pilgrimage (Haj) An Overview. *Libyan J Med, AOP*: 071211
- Siavash M, Haghighi S. Recommendations for patients with diabetes mellitus during hajj pilgrimage. *J Res Med Sci* 2012;17:988-9.