

foundation of development. Let me take the opportunity to emphasize the importance of Epidemiology in this respect. This subject is the basis of medical research and should be taught on all levels in medical schools. This is a priority issue when planning for future development in medical education.

**Sherine Shawky**

*Department of Community Medicine & Primary  
Health Care  
College of Medicine and Allied Health Sciences  
King Abdulaziz University  
PO Box 115  
Jeddah 21411  
Kingdom of Saudi Arabia*

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### **Insulin therapy for diabetic ketoacidosis**

Sir,

I read with interest the communication of Dr. Khan on the dangers of intravenous (IV) insulin in the management of diabetic ketoacidosis (DKA).<sup>1</sup> Because of the importance of the topic, many points in their report need to be clarified. Although crucial information such as the weight and blood gas status of the patients were not given, the insulin dose prescribed by the treating physician is apparently high (10 U/hour). It is well known that continuous insulin infusion therapy is not recommended if

syringe or infusion pumps are not available, but I can hardly see how an ordinary plain drip set delivers 500 ml of fluid in one hour. Ideally, severe DKA should be treated in intensive care units particularly if bicarbonate therapy is contemplated,<sup>2</sup> but in many situations this is not possible for logistic reasons. It is not clear from the report whether the patients died of severe hypoglycemia complicated by neuroglycopenia or of cerebral edema secondary to the rapid fall in osmolality. Very little clinical data was presented, which was not enough for making solid conclusions. The astonishing thing was the recommendation they made about using IV insulin in pulses where continuous infusion is not possible. Bolus IV insulin therapy is not appropriate. It leads to rapid lowering of plasma glucose that is shortly followed by a rebound hyperglycemia because the half-life of IV insulin is only 5 minutes.<sup>3</sup> The rational recommendation in such circumstances is the use of a single initial IV insulin dose of 0.1 U/kg body weight followed by IM insulin in doses of 0.1 U/kg/hour. After the control of hyperglycemia (blood glucose < 15 mmol/l) and the disappearance of acidosis (blood pH > 7.3), the insulin should be given subcutaneously in a dose of 0.25 U/kg every 4-6 hours. Continuous glucose monitoring using electronic devices is not essential and the bedside measurement of capillary blood glucose is quite reliable. The need for development of adapted local protocols for the management of this acute medical emergency, that take into account the availability of staff and facilities, cannot be over emphasized.

**Abdelaziz Elamin**

*College of Medicine  
Sultan Qaboos University  
PO Box 35, Al-Khoud 123  
Muscat, Oman*

### *Reply from the Author*

Sir,

I would like to thank Dr. Abdelaziz Elamin for his interest in my scientific communication. I would like to mention here that my communication was not a case report so most of the details were not reported. My aim was just to bring to the notice of the medical community of this region, those in Saudi Arabia in particular, the difficulties, problems and errors, which are encountered during the Hajj period. Cause of death whether hypoglycemia or cerebral edema is in either case related to rapid lowering of blood glucose without proper monitoring. Recommendations of hourly intravenous regular insulin are well established. Regular insulin given

intravenously has maximum effect at 10-30 minutes and lasts one-2 hours. Intramuscular insulin is a good alternative if the patient is not hypotensive. Knowledge, understanding and skills of paramedical staff should never be taken lightly.<sup>4</sup>

**Latif A. Khan**  
Najran General Hospital  
PO Box 5073  
Najran  
Kingdom of Saudi Arabia

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### Urinary tract infection

Sir,

I read with interest Dr. Akbar's study on urinary tract infection (UTI) in hospital, particularly in medical patients. This simple, elegant and factual study provides useful information to clinicians in practice both in Kingdom of Saudi Arabia and elsewhere. I have only some comments that represent a wish list. I hope available data to the author might allow further comments that would make his study most comprehensive and valuable. Identifying and segregating patients who present with acute UTI from those with recurrent chronic infections is important with regards to the underlying cause of UTI and the choice of antibiotic therapy. I agree that aminoglycoside and ciprofloxacin are the first choice in treating acute UTI, but I am not so sure if it should be used in recurrent UTI of both diabetics and

nondiabetics. It is unfortunate that drugs such as Nalidexic acid and Macrochantines were not included in the list of drugs used in susceptibilities of organisms isolated from urine. These drugs may be cheap and old but my experience suggest that it continues to work in chronic UTI when other drugs fail. Including the result of urine analysis in the study, particularly the white cell count or pyuria, and contrasting it with the result of urinary culture would answer an important question: should the incidence of UTI include patients with positive cultures only, or should it extend to include those with abnormal pus cells in urine analysis as well? There is a group of patients who present with pyuria and symptoms of UTI but have negative bacterial cultures. One always wonders if this is due to false negative cultures, particularly when the urine samples were taken before the start of antibiotic therapy, while specific infections such as tuberculosis and brucellosis were excluded. The author reported that: "Out of a total of 7154 urine cultures, 763 (11%) showed significant bacteruria, 182 (32%) were from the medical unit." Does the total number of cultures, belong to the whole hospital (both out-patients and in-patients) or in-patients only? The incidence is in fact 2.5% of all UTI patients. One thought the overall incidence of UTI in referred hospital patients was around 20%, would the difference be related to the above-mentioned method of diagnosis of UTI?

**Ahmed N. Ghanem**  
King Kahlid Hospital  
PO Box 1120  
Najran  
Kingdom of Saudi Arabia

### Reply from the Author

Author declined to reply.

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