Surgery on Patients With Diabetes Mellitus: Emphasizing A Multidisciplinary Approach

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The prevalence of diabetes mellitus has increased over the decades. Similar trend is also reported from low and middle-income countries. This is considered a major public health problem and one of the priority research areas amongst all the non-communicable diseases.[1] According to the World Health Organization more than three-quarters of the deaths related to all the non-communicable diseases are reported from low and middle-income countries.[2] Pakistan is one of the countries where same pattern is reported.[3] Our regional countries also provided data on diabetes mellitus and reported a significant number of patients who remained undiagnosed and presented with the complications of uncontrolled diabetes mellitus.[4]

In patients suffering from diabetes mellitus the outcome of the surgical procedures can be affected in number of ways. It is therefore important that surgeons should be aware of the pathophysiology of diabetes mellitus in addition to the surgical conditions of the patients. The presence of hyperglycemia and the comorbid factors that affect other organ systems can have bearing on the outcome of the surgical procedures. Hyperglycemia is considered as an independent marker of the suboptimal surgical outcome. This include wound infections, delayed wound healing and subsequently prolonged hospital stay that add to the morbidity and at times mortality. In a study it was found that with a blood glucose level of more than 180 mg/dL, a higher rate of adverse events was observed.[5]

Surgical procedures along-with anesthesia produce stress response in the body. This results in production of number of hormones like cortisol, catecholamines, glucagon and others. These hormones increase the gluconeogenesis. They also affect the production as well as function of the insulin in a negative manner. The net effect is less glucose utilization, and increased lipolysis as well proteolysis. The overall effect is increase in the level of blood glucose which is called stress hyperglycemia.[6] This may result in osmotic diuresis further compromising fluid and electrolyte balance. The cytokine production also increases that leads to the damaging effect on the body cells and their function including immune system dysregulation.

Perioperative management of the diabetic patients is important for various issues mentioned above. Involvement of an endocrinologist is important. Different protocols have been reported in the literature for the management of the diabetes mellitus. Each patient should be discussed in a multidisciplinary meeting. The nature of the surgical disease, the surgical procedure to be performed and type of anesthesia selected are essential points of discussion. The status of the patient, type of drugs used to control the blood sugar level, compliance to the treatment, presence of other comorbid are some of the essential elements to be considered. Intraoperative and postoperative periods are also important. These are as crucial as preoperative protocols. Counseling of the patients is mandatory in order to improve awareness and compliance in the postoperative period.[7]

In many studies on surgical patients the individuals with comorbid are excluded. This is often done in order to remove the bias while reporting the results of the surgical interventions. However, it is recommended to include the patients with comorbid and results can be stratified according to the different confounding variables. In this issue of Journal of Surgery Pakistan, a study has been published in which the management of gestational diabetes mellitus and its effect on pregnancy outcomes are reported. A precise peri-gestational management resulted in good outcome. This was done in a multidisciplinary approach.[8] Such a strategy is therefore recommended in patients suffering from diabetes mellitus or those who are pre-diabetic. The results of surgical procedures across the specialties is expected to improve with minimal morbidity and mortality with this approach.

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