

Emergency assessment and management of diabetic ketoacidosis



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Diabetic Ketoacidosis: Diabetic ketoacidosis (DKA) is developed due to deficiency in insulin which is moving all over the body. DKA is developed in the body due to depletion of water and electrolytes from both the intra and extra cellular fluid compartments. Even if the patient is dehydrated, they use to maintain normal blood pressure and maintaining considerable urine output until extreme volume depletion and shock occurs in the body which create critical decrease in renal blood flow and glomerular filtration.

Assessment:

Once the diagnosis and examining the factors that have developed its cause has been confirmed, according to it a clinical evaluation should be developed. It is very important to determine what are the main causes of infection. Also it is very important to check the weigh of the patient. Assess clinical severity of dehydration. It is also important to assess the level of consciousness using Glasgow coma scale [GCS].

Management:

Laboratory blood glucose should be measured at diagnosis. An ECG monitor should be applied until the patient is stable. Consultate the Diabetes Team as soon as possible for a decision on continuing management. Transfer to subcutaneous (SC) insulin one the patient is able to eat and drink properly. Do not stop the IV insulin until SC insulin has been given. Patient with known diabetes should go back to their previous insulin regimen. If possible identify the precipitating cause of DKA. Always inform the Diabetes Team so that education can be given to reduce the risk of future episodes of DKA.

Hyperosmolar non – ketotic coma (HONK): Type 2 diabetes, usually in patients over 60 years. This condition is characterized by hyperglycemia and high plasma osmolality without significant keton-uria or acidosis (Pinies JA, Cairo G, Gaztambide S, et al. 1994).

Assessment:

Same as Diabetic ketoacidosis (DKA) but look for precipitating medical condition, e. g. sepsis, myocardial infarction etc

Management:

Management of Hyperosmolar non – ketotic coma is same as DKA . Also the insulin infusion rate should be halved as paradoxically these patients can be quite insulin sensitive. Elderly patients are more likely to need a CVP line to optimize fluid replacement. Risk of thromboembolic disease is high – anticoagulant fully if no contraindications. Most patient can be managed with oral hypoglycemic agents or diet, but recovery of insulin may take time and insulin may be required for few weeks.

Hypoglycemia: Hypoglycemia is developed due to the mismatch between insulin dose, food consumed and any other recent activities undertaken like exercise. Because it can be accompanied by unpleasant, embarrassing, and potentially dangerous symptoms and because it causes significant anxiety and fear in the patient and their caregivers, it's occurrence is a major limiting factor in attempts to achieve near normal BG levels (Clarke WL, Gonder-Frederick A, Snyder AL, Cox DJ 1998, Cryer PE 2002).

Assessment:

Each hypoglycaemic episode should be assessed carefully to determine its cause evaluating the insulin action profile (time of insulin administration, peak insulin action and intensity of insulin action). Check the recent food intake (timing and amount of carbohydrates eaten and peak BG effect on recent food. Also check recent physical activity (timing, duration and intensity). Also check and missed signs and symptoms of early hypoglycaemia.

Management:

Management of hypoglycemia involves immediately raising the blood sugar to normal, determining the cause, and taking measures to hopefully prevent future episodes. Initially Glucose 10-20 g is given by mouth either in liquid form or as granulated sugar (2 teaspoons) or sugar lumps (Smeeks FC, 2006). If hypoglycemia causes unconsciousness, or patient is unco-operative, 50 mL of glucose intravenous (IV) infusion 20% can be given. Alternatively, 25 mL of glucose intravenous infusion 50% may be given, but this higher concentration is viscous, making administration difficult; it is also more irritant.

Once the patient regains consciousness oral glucose should be administered as above.

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From your article I was able to understand the pathophysiology, prevention and the treatment of Macrovascular complications. Also I would like to add that Macrovascular can also be reduced by improved metabolic of diabetes. Controlling the blood sugar is essential but along with it, treatments of Dyslipidemia (e. g. familial hypercholesterolemia) play an important part to reduce the Macrovascular complications. Participating in healthy exercise and not smoking also makes big difference Diabetic complications can be classified broadly as Microvascular or Macrovascular disease. Microvascular

complications include neuropathy (nerve damage), nephropathy (kidney disease) and vision disorders (eg retinopathy, glaucoma, cataract and corneal disease). Macrovascular complications include heart disease, stroke and peripheral vascular disease (which can lead to ulcers, gangrene and amputation). Other complications of diabetes include infections, metabolic difficulties, impotence, autonomic neuropathy and pregnancy problems. Also I would like to mention that Erectile dysfunction is one of the most common complications of diabetes mellitus. Many studies have found that Erectile dysfunction is closely associated with cardiovascular risk factors (Solomon H, Man JW, Jackson G, 2003) . The age of the patients has been related to the extent of ED. Erectile dysfunction is less frequent in the young population, although its incidence starts to rise from the fourth decade of life. In patients > 60 years, prevalence of ED amounts to about 35% to 40% (Braun M, Wassmer G, Klotz T, et al. 2000). Diabetic Retinopathy can be prevented by using laser surgery which is used to shrink abnormal blood vessels. Scatter Laser and focal later treatments are the type of laser surgery used to prevent Diabetic Retinopathy. Also it is important to keep blood pressure and cholesterol level under control.

References:

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Eliza, you have given a perfect picture of emotion and stress which Belinda is facing. Now a day's diagnosis of breast cancer is a great shock. Today women fear breast cancer more than heart diseases, even though they have a better chance of surviving cancer than dying to stroke or heart failure (National Institute of Health 2008).

As the women being to deal with diagnosis and treatment of breast cancer, their body automatically start reacting to emotions. Their physical response to overall stress may be fear (trouble sleeping, headaches or body aches), Anger (Change of blood pressure), Depression (fatigue, crying. Feeling moody), stress (pain, irritability, tension). Also once women accept her diagnosis, they may also face another emotional concern. The loss of breast or part of breast has a deep impact that goes beyond the physical fact. Moreover if aggressive treatment is required, it may also be long term impact on the health. The fear of recurrence. Loss of attractiveness, difficulty in sexual function and loss of fertility also plays important role to increase the stress.

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Every woman who is facing this situation should understand that getting help for emotion is not the sign of weakness. There are certain ways to cope with this emotion. The best is communicate with family and friend, maintaining intimacy with your partner, visiting the counsellor or spiritual person, joining the support team are some of the sign which will make great difference to tackle emotions. In term of health care practice, Report any symptoms or change to the healthcare team. Always maintain a log of health visit, test result etc. educating yourself about the cancer and the treatment and having regular exercise along with plan for crisis make a huge impact.

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Tracy, you have indeed developed a proper Morden care plan for Christine. Now a days Type 2 diabetes has become common and as well as major health concerns among indigenous people in Australia. Most of them try to avoid and get help from the Morden medicines. They still believe in their traditional beliefs and medicines developed by the elders in their communities. Less physical activities and traditional indigenous diets are the main factors which contribute towards obesity and development of type 2 diabetes among indigenous population. It is found that the main complications for diabetes among the indigenous Australian are renal

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disease, retinopathy, heart disease and infection, cerebrovascular disease and neuropathy (Australian Institute of Health and Welfare, 2002).

Due to infection and neuropathy factors, most of the indigenous Australian suffers from painful foot related infections (Australian Bureau of Statistics 2006). Most of the admission regarding foot complication requires amputation of toe and further risk.

Even though indigenous Australian tries to avoid Morden medications, there are various factors which can help them to improve their glycaemic control to minimise their micro vascular and macro vascular complications (Couzos S, O'Rourke S, Metcalf S, Murray R 2003). The most important change they can make is in regards to dietary control. It can be maintained by reducing the carbohydrate and mono - unsaturated fat and fibre. Maintaining and developing physical activities and Exercise also improve glycaemic control. This is good for controlling hypertension and cholesterol level.

It is also very important that education and information should be provided to indigenous Australian who is suffering from diabetes regarding the intake of smoking and alcohol (National Health and Medical Research Council 1997) it is important to inform the diabetic smoker about the risk of smoking and should be encourage to stop. They should also limit the intake of alcohol and should be consumed in strict control manner.