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Nutritional Support in Critically Ill Obstetric Patients

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Critically ill pregnant patients (CIPP) are not common in intensive care units (ICU) compared to other groups of patients. However, a considerable number of admissions of CIPP to the ICU are seen in developing countries (Briones 2006). These patients have a higher metabolic basal rate (MBR) due to a combination of the pregnancy itself (which normally increases the MBR) and the critical condition. Nutritional support must be initiated as soon as the patients are haemodynamically stable and needs to be focused on both maternal and fetal requirements. Suboptimal nutritional support can decrease fetal growth and increase the risk of death for both mother and fetus.

Nutritional assessment in complicated pregnancy includes evaluation of weight and height, as well as biochemical, clinical and dietetic variables.

Weight and height are the main variables to evaluate the nutritional state of pregnant women. The gain of weight recommended during pregnancy is determined by the pre-pregnancy body mass index (BMI): BMI= pre-pregnancy weight kg/height m², which is important to classify the nutritional state (BMI= ≤18.5 under weight, 18.6-24.9 normal weight, 25-29.9 overweight, ≥30 obesity). Under ideal conditions the BMI must be determined at the beginning of pregnancy. However, in CIPP it is difficult to calculate the weight before pregnancy; therefore it is suggested to use the proportion of ideal body weight (IBW) according to the gestational age (%IBW: the patient has to be 90-110% of the ideal weight according to the gestational age during the entire pregnancy) (Villazon and Arenas 2008; De Legge and Drake 2007).

Biochemical evaluation: During pregnancy, specifically in CIPP it is recommended to determine cholesterol, triglycerides, glucose, haemoglobin, albumin, transferin, pre-albumin, nitrogen balance and ureic nutritional balance. Dislipidemia (high values of cholesterol and triglycerides in

blood) may occur because of the pregnancy or due to malnutrition. The presence of obesity and dislipidemia and/or hyperglycemia produces a metabolic syndrome.

Mexico now occupies the second place worldwide for obesity: seven out of ten women are obese. On the other hand, few data are available on the prevalence of gestational diabetes and metabolic syndrome in obstetric patients (Kruse 2005). Additionally, it is important to consider the biochemical variables to calculate the amount of micro and macronutrients, which have to be properly distributed.

Physical examination must be performed according to the main diagnosis and focused on their effect on the nutritional state and/or the integrity of the gastrointestinal tract (Sobotka et al. 2004). An advantage of giving nutritional support in CIPP is the absolute control of quality, quantity and food composition (Simon et al. 2003).

Diet should be considered an immediate intervention, either oral, enteral, total parenteral nutrition (TPN) or a combination of these. If diet should include at least 75% of daily requirements in a critically ill patient, in CIPP it is important to ensure 100% of their daily requirements to obtain an optimal weight gain (Table 1).

Calculation of Daily Requirements

The main diagnosis of the CIPP should be taken into account to ensure a proper nutritional diagnosis. Due to the difficulties in determining weight and height at the ICU in CIPP, it is recommended to use specific formulas (which include the actual body weight) to calculate energy and protein requirement according to the stress factor described in Table 2.

Nutritional Support

There is no difference in indications between CIPP and those pregnant women who are not in a critical condition. If the gastrointestinal tract is intact, enteral nutrition should be started as soon as possible. If there is a contraindication to use the gastrointestinal tract then a TPN is indicated, mainly if the patient is at high risk of malnutrition (Kruse 2005; Sobotka et al. 2004). The combination of TPN with enteral nutrition is recommended if the patient cannot meet the energy requirements, but few data are available regarding the benefit of using a combined therapy (Simon et al. 2003).

Routes of Nutrition

The best route to give an adequate nutrition in a CIPP depends on the severity of the case. The enteral route is the first choice if the gastrointestinal track is intact and the components of the diet will provide the amount of energy and proteins required according to the severity of the case. When a CIPP has a gastrointestinal dysfunction and/or the enteral nutrition will not fulfil the energy and protein requirements, then an intravenous route should be considered (Villazon and Arenas 2008; Sobotka et al. 2004).

Conclusion

Nutritional support in CIPP should be managed by a professional nutritionist as part of the ICU team to treat and follow the nutritional progress of the patient. It is very important to start nutritional support in CIPP at the ICU as soon as possible, due to the high daily requirements of energy and proteins that pregnancy demands. Nutritional support should promote fetal growth as well as appropriate weight gain of the mother.

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