

SAFETY AND EFFICACY OF FAST-ACTING INSULIN ADDED TO TOTAL PARENTERAL NUTRITION

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Background

Total Parenteral Nutrition (TPN) support requires a multidisciplinary approach from experienced healthcare professionals such pharmacists, to minimise potential complications. However on daily basis clinical practice is common come across with altered blood glucose concentration on patients on TPN feeding who require closer monitorization with complex and dynamic treatment with insulin to avoid potential complications. Despite such potential benefits, insulin added to TPN still controversial due mainly to the potential risk of hypoglycaemia related to its biodisponibility.

Purpose

Analyze and evaluate the efficacy and safety of fast-acting insulin added to TPN admixtures, in patient with altered glycaemia, followed up by Nutrition Support Pharmacists

Material and methods

Observational and retrospective study carried out in a General Hospital for 19 months (January 2017 to July 2018). Data were collected from Electronic Clinical Records and Electronic Prescribing System. Data collected: total patients on TPN with altered blood sugar levels followed up by Pharmacy Team, patients treated with fast-acting insulin (TPN bag additive), daily (3 times) blood sugar levels (BMs), patient's demographics, hypoglycaemias (defined by blood sugar levels less than 70 mg/dL) and hyperglycaemias (defined by BMs more than 180 mg/dL). Patients admitted on Critical Care Unit (CCU) and / or were not followed up by Pharmacy Team were excluded. We considered target BMs between 140 to 180 mg/dL. All Insulin adjustments were done by Nutrition Support Pharmacist.

Results

Total patient on TPN with altered BMs were 148, 36 (24.3%) patients required fast-acting insulin therapy. Thirty patients were included on this study due to six were admitted on CCU. Patient included: 20 were men (66.6%), average age of 67 years (range 45-91). 25 (83.3%) patients had hyperglycaemia (≥ 1 BMs > 180 mg/dL) whom 17 (56.6%) required fast-acting insulin therapy on the TPN bag. Average TPN duration on fast-acting insulin treated patients were 10 days (range 3-36). Average days BMs > 180 mg/dL: 4.5 (range 1-11). Average BMs > 180 mg/dL: 242 mg/dL (range 181- 427 mg/dL; mode: 220 mg/dL). One patient had hypoglycaemia non-insulin related. None treated with fast-acting insulin had hypoglycaemia.

Conclusion

Despite more than half of patients treated with fast-acting insulin therapy had hyperglycaemia, none of them had hypoglycaemia. On the other hand, a cautious use of fast-acting insulin TPN bag added could boost hyperglycaemias in our patients. In conclusion, administering insulin along TPN continuously appeared to be a safe method providing a smoother glycaemic profile in our study.



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