

Changes of Total Plasma Triglycerides in Neonates Treated With Intralipid : A Pilot Study

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Received: May 15, 2014; Accepted: June 13, 2014

Keywords: Fat Emulsions, Intravenous; Triglycerides; Infant, Newborn

Dear Editor,

The current scientific literature states that Intralipid 10% emulsion has a higher ratio of phospholipids to triglycerides, and contains more lysozomal phospholipids as compared to Intralipid 20% and Intralipid 30%, so it causes higher plasma concentrations of triglycerides, cholesterol and phospholipids (1, 2). It should be noted that serum triglycerides concentration is used as a marker for lipid tolerance and predicting the probability of complications involved with the administration of Intralipid 10%. In view of the fact that Intralipid 10% emulsion is the only currently available Intralipid in Iran, and also used for years, is known to have no significant side effects, we conducted a before and after descriptive, observational study on 20 newborns (10 females and 10 males) hospitalized in NICU of Valiasr hospital, Tehran University of Medical Sciences, that required total intravenous nutrition, and evaluated the effects of Intralipid 10% on neonates' total plasma triglycerides before TPN and once the dose of Intralipid reached 2.5 g/kg/day. In the first step total plasma triglycerides level was measured. Then continuous daily infusion of Intralipid 10% with 0.5 g/kg/day dose was started increasing daily 0.5 g/kg until enteral nutrition was able to provide approximately 100 to 110 kcal for kg body weight. The outcome was total plasma triglycerides levels higher than 200 mg/dL in newborns receiving intravenous Intralipid 10% nutrition.

Heparin was administered routinely with parenteral nutrition; heparin can theoretically release lipase lipoprotein from endothelial cells that may accelerate clearance of lipids from plasma.

Total plasma triglycerides was monitored weekly when the Intralipid 10% dosage reached 2.5 g/kg/day and was continued to the end of TPN therapy, or until it reached

the maximum level of 150-200 mg/dL, defined in scientific references as the indication for termination of intravenous Intralipid administration.

There were no significant differences observed between total plasma triglycerides level before intravenous feeding (62.95 ± 10.46 mg/dL) and after Intralipid terminating dose of 2.5 g/kg/day (63.15 ± 12.98 mg/dL) ($P = 0.9$). Also no correlation was observed between birth weight, duration of intravenous feeding and plasma triglycerides level difference ($P > 0.005$).

Viewing the results of this study which has been referred to in detail, we intend to indicate that no significant difference between total plasma triglyceride levels before intravenous feeding and total plasma triglyceride levels after Intralipid 10% dosage has reached 2.5 g/kg/day, was seen ($P = 0.9$). This study in accordance with previously published studies (3-6) showed that Intralipid 10% is well tolerated by patients and levels of plasma triglycerides did not increase, VLDL and HDL remained in normal range and no significant complication was observed. The last noteworthy point is that the length of infusion can also be an important parameter in modulating possible listed side effects of Intralipid 10% mentioned in other sources. In conclusion, this study showed that in the absence of Intralipid 20% or 30%, the use of Intralipid 10% has not led to high levels of triglycerides in our neonates.

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