

Triglyceride Monitoring and Safety Outcomes with Propofol Continuous Infusion



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Background

- Propofol is a sedative-hypnotic recommended first-line by the 2018 SCCM PADIS Guidelines for sedation in mechanically ventilated patients¹
- Propofol use is associated with hypertriglyceridemia (HTG), as it is formulated as an oil-in-water lipid emulsion²
- Acute pancreatitis is a known adverse effect of propofol and can occur irrespective of triglyceride (TG) level, but HTG with TG >1000 mg/dL significantly increases the risk³
- There is a paucity of literature or guideline recommendations surrounding appropriate TG monitoring for propofol continuous infusions (PCI)

Purpose

To assess the current practice of TG monitoring for patients on PCI, resultant TG levels, and associated safety outcomes

Methods

- Retrospective observational study

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> Admitted to the medical ICU between January 2021 - December 2021 Received PCI for ≥ 72 hours 	<ul style="list-style-type: none"> Transferred from outside facilities

- Primary Outcome:** incidence of HTG (TG > 500 mg/dL)
- Secondary Outcomes:** incidence of severe HTG (TG > 1000 mg/dL), time to HTG, mean and maximum rate of infusion, time to first TG check, incidence of pancreatitis, incidence of propofol-related infusion syndrome (PRIS)

Results

593 patients screened		Results - all patients (N=94)	
499 patients excluded due to < 72 hours on PCI or transfer from outside facility			Mean (SD)
94 patients included in final analysis		Number of times TG checked while on propofol	2.0 (1.8)
		Time to first TG check (days)	3.1 (1.9)
		Number of levels checked per days on propofol	0.23
		Average days per TG check	4.3
		Total dose of propofol (mg)	39,585 (35,854)
		Mean rate of infusion (mcg/kg/min)	32.9 (10.4)
		Maximum rate of infusion (mcg/kg/min)	48.4 (10.9)
		Highest TG level (mg/dL)	330 (369)
		Time to highest TG level (days)	5.4 (4.8)
			N (%)
		Incidence of TG > 500	18 (19)
		Incidence of TG > 1000	3 (3)
			Mean (SD)
		Days to TG > 500	6.1 (5.9)
		Days to TG > 1000	8.5 (1.5)
			N (%)
		Incidence of pancreatitis	0 (0)
		Incidence of PRIS	0 (0)

Baseline Characteristics (N=94)	
	Mean (SD)
Age (years)	56.0 (14.5)
BMI (kg/m²)	33.9 (10.1)
ICU Length of Stay (days)	17.4 (10.0)
	N (%)
Male	56 (60)
Female	38 (40)
Admitted for COVID-19	62 (66)
Past Medical History	
CAD	13 (14)
CKD/ESRD	8 (9)
Hyperlipidemia	26 (28)
Diabetes	29 (31)
Pancreatitis	2 (2)

Results

	TG < 500 (n=76)	TG > 500 (n=18)	TG > 1000 (n=3)
	Mean (SD)		
Mean Rate of Infusion (mcg/kg/min)	31 (10.5)	39 (7)	40 (7.8)
Max Rate of Infusion (mcg/kg/min)	47 (11)	53 (9.5)	53 (4.7)
BMI (kg/m²)	33 (10)	36 (8)	38 (10.8)
Total propofol dose (mg)	36,071 (34450)	54,424 (37815.6)	63,811 (39522.2)
Time on propofol (days)	8.4 (5)	9.5 (5.4)	8 (2.9)
	N (%)		
Admitted for COVID-19	45 (59)	17 (94)	3 (100)

Conclusions

- Despite prolonged PCI, few total TG checks, and 19% incidence of HTG, no adverse effects observed
- Given mean time to HTG onset, delaying initial TG check to 6 days may be appropriate
- These findings are hypothesis-generating, and a larger study is needed to confirm

References

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