South Australian Neonatal Medication Guidelines

SMOFlipid with vitamins

SMOF20%, Soluvit N, Vitalipid N infant (Fresenius Kabi®)

Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Synonyms

SMOF (20%) stands for **S**oya oil (6%), **M**edium chain triglycerides (6%), **O**live oil (5%), **F**ish oil (3%)

Final volume contains 17% fat providing 1.7kcal/mL.1mL of fat emulsion is equivalent to 0.17g of fat

Dose and Indications

Supply of energy, essential fatty acids and omega-3 fatty acids as part of a parenteral nutrition regimen, when oral or enteral nutrition is impossible, insufficient or contraindicated

Intravenous infusion

Commence at 1g/kg/day, and increase daily as tolerated up to 3g/kg/day.

Infusion should be run over 24hrs.

Should be given with parenteral nutrition.

Table 1: Guide for Dose & infusion rate

Dose (gram/kg/day)	Approximate infusion rate (mL/kg/hour)
1	0.25
2	0.5
3	0.75

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Preparation and Administration

25ml syringes contain: SMOF lipid (18ml), SoluVit (1.4ml), Vitalipid (5.6ml)
Used for infusion rate <1ml/hr

50ml syringes contain: SMOF lipid (36ml), SoluVit (2.8ml), Vitalipid (11.2ml)
Used for infusion rate ≥1ml/hr

Store syringes in fridge. Syringes are stable at room temperature for 24hours.
Administer via light protected line (e.g. amber line).

Adverse Effects

Common

Hypertriglyceridemia, hyperglycaemia, hyperbilirubinemia, abnormal LFTs, hypersensitivity reactions

Monitoring

- Serum triglyceride should be measured at baseline. Levels may be considered 1-2 days after initiation or adjustment of lipid infusion, and then preformed weekly thereafter if required. More frequent monitoring may be warranted in patients at high risk of hyperlipidaemia.
- Liver function test
- Platelet count
- Glucose

Practice Points

- ESPGHAN 2018 recommends regular triglyceride monitoring in patients receiving intravenous lipid emulsion, and more frequent monitoring in cases with marked risk for hyperlipidaemia (e.g. patient with high lipid or glucose dosage, sepsis, catabolism, extremely low birth weight infants).
- ESPGHAN 2018 suggests a triglyceride concentration of 3mmol/L, taken *during infusion*, as the upper limit. Reduction of the dosage can be considered if concentrations exceed this.
- Should be given with parenteral nutrition.
- SMOFlipid® is compatible via Y-site with parenteral nutrition solutions (PNS), fentanyl, midazolam, and morphine
- Avoid co-infusion of dopamine with SMOFlipid®. However, if no alternative option, co-infuse with caution, and only with dopamine concentrations less than or equal to 1600microg/mL. There is conflicting data on the Y-site compatibility of intravenous lipids and dopamine. Y-site compatibility has been reported with parenteral nutrition solutions containing Intralipid® and dopamine infusion, however studies using dopamine concentrations greater than 1600microgram/mL has shown physical incompatibility. There is no evidence to guide practice with SMOFlipid®. Additionally, co-infusion of PNS or fat emulsions with inotropic agents can result in pulsatile flow of inotropic agents.

- Use with caution in patients with sepsis or hyperbilirubinaemia. Septic, acidotic and post-operative neonates will have lower requirements.
- 14%SMOFlipid with vitamins may be required in neonates with lipid intolerance. It may be ordered on request only from Fresenius Kabi® with approximate 2 day turnaround time (speak with your pharmacist).

References

- Lapillonne A, ESPGHAN/ESPEN/ESPR/CSPEN guidelines on pediatric parenteral nutrition: Lipids, 2018, Clinical Nutrition

Document Ownership & History

Developed by: SA Maternal, Neonatal & Gynaecology Community of Practice
Contact: Health.NeoMed@sa.gov.au
Endorsed by: Commissioning and Performance, SA Health
Next review due: 12/02/2024
ISBN number: 978-1-76083-537-8
CGSQ reference: **NMG032**
Policy history: Is this a new policy (V1)? **Y**
Does this policy amend or update and existing policy? **N**
If so, which version? **V1.1**
Does this policy replace another policy with a different title? **N**
If so, which policy (title)?

Approval Date	Version	Who approved New/Revised Version	Reason for Change
26/10/22	V1.2	Domain Custodian, Clinical Governance, Safety and Quality	Additional practice point regarding y-site compatibility with dopamine
27/02/20	V1.1	A/Prof R Grivell (Chair MNCOP	Addition under 'Administration". Protect line from light
12/02/19	V1	SA Health Safety and Quality Strategic Governance Committee	Original SA Health Safety and Quality Strategic Governance Committee approved version