

Anesthetic and Obstetric Outcomes in Pregnant Individuals with Sickle Cell Disease: A Retrospective Observational Study at a Tertiary Academic Center

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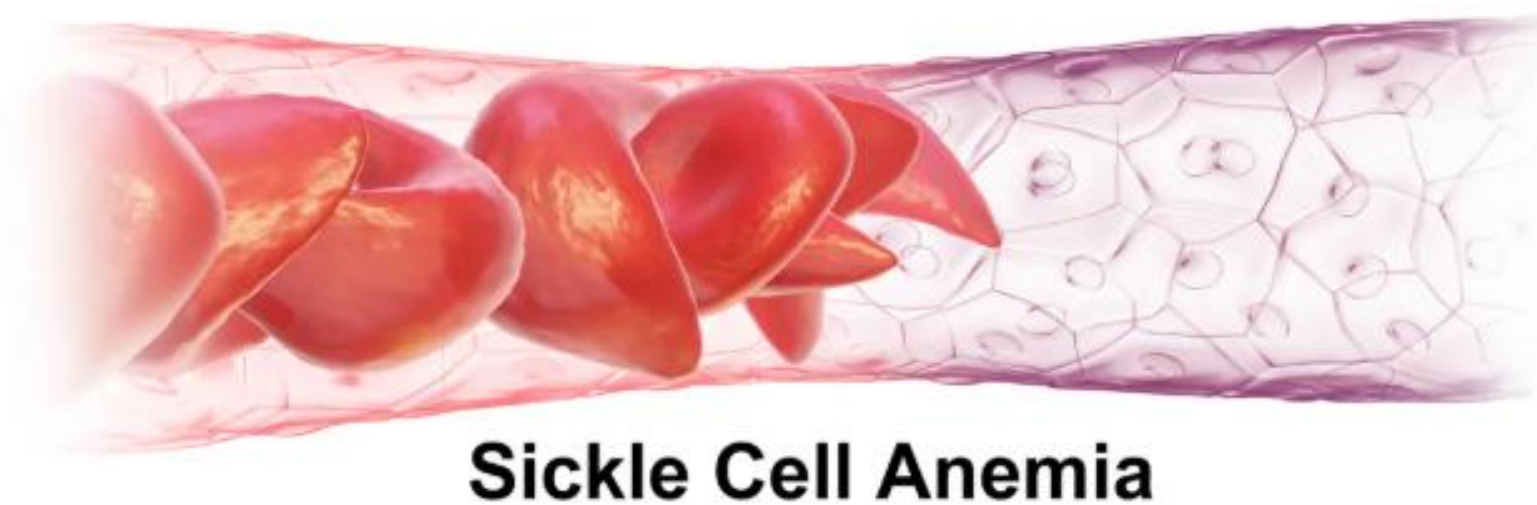
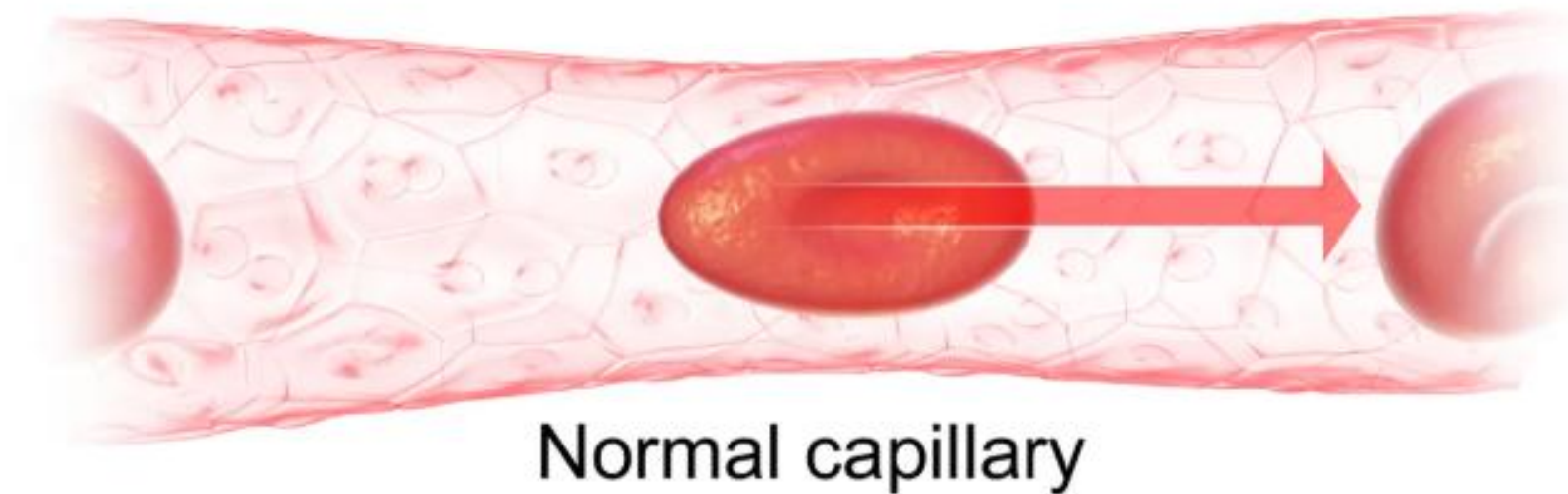
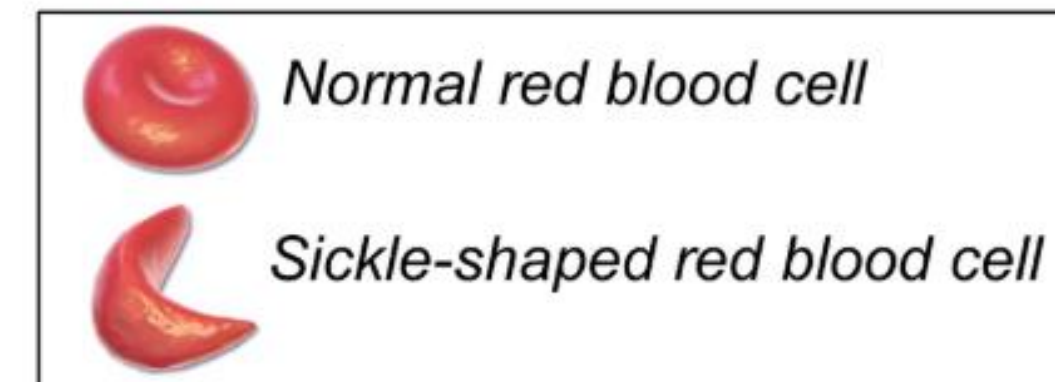
**Sinai
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Background & Hypothesis

Clinical Context & Goals

- **Pregnancy Risks:** Drastically exacerbates baseline anemia, stasis, and hypercoagulability in SCD patients.
- **High Morbidity:** Approximately 55% of parturients experience severe vaso-occlusive crises (VOC) or acute chest syndrome.
- **Anesthetic Complexity:** Labor analgesia is heavily complicated by patients' elevated baseline opioid tolerance.
- **Study Objective:** Assess the efficacy and safety of peripartum anesthetic management and associated maternal-fetal outcomes.



Study Design & Methods



Results

72% Vaso-Occlusive Crisis (VOC) During Pregnancy

>50%

Primary admission
reason

>

20.3%

Had >2 episodes

>

34

IOl due to VOC

>

9

ACS postpartum



Labor Analgesia

- **53** neuraxial placements
- **64%** manual top-ups
- **24.5%** higher concentration
- **9** epidural replacements
- **37.7%** needed IV opioids

Cesarean Section

- **45** cesarean deliveries
- **30%** (n=14) intraoperative pain
- Median EBL: **500 mL**



Maternal Safety

- **4** ICU admissions
- **No** maternal deaths
- **Zero** mortality rate

Discussion



Why This Matters

- 72% VOC rate demands proactive anesthetic planning
- 9 ACS postpartum cases underscore respiratory monitoring needs
- Early delivery (34 IOL) often necessary for maternal safety



Clinical Takeaways

- Anticipate neuraxial escalation: 64% top-ups, 24.5% higher doses
- Regional anesthesia reduces VOC risk but 30% still have pain
- ACS vigilance essential in postpartum period

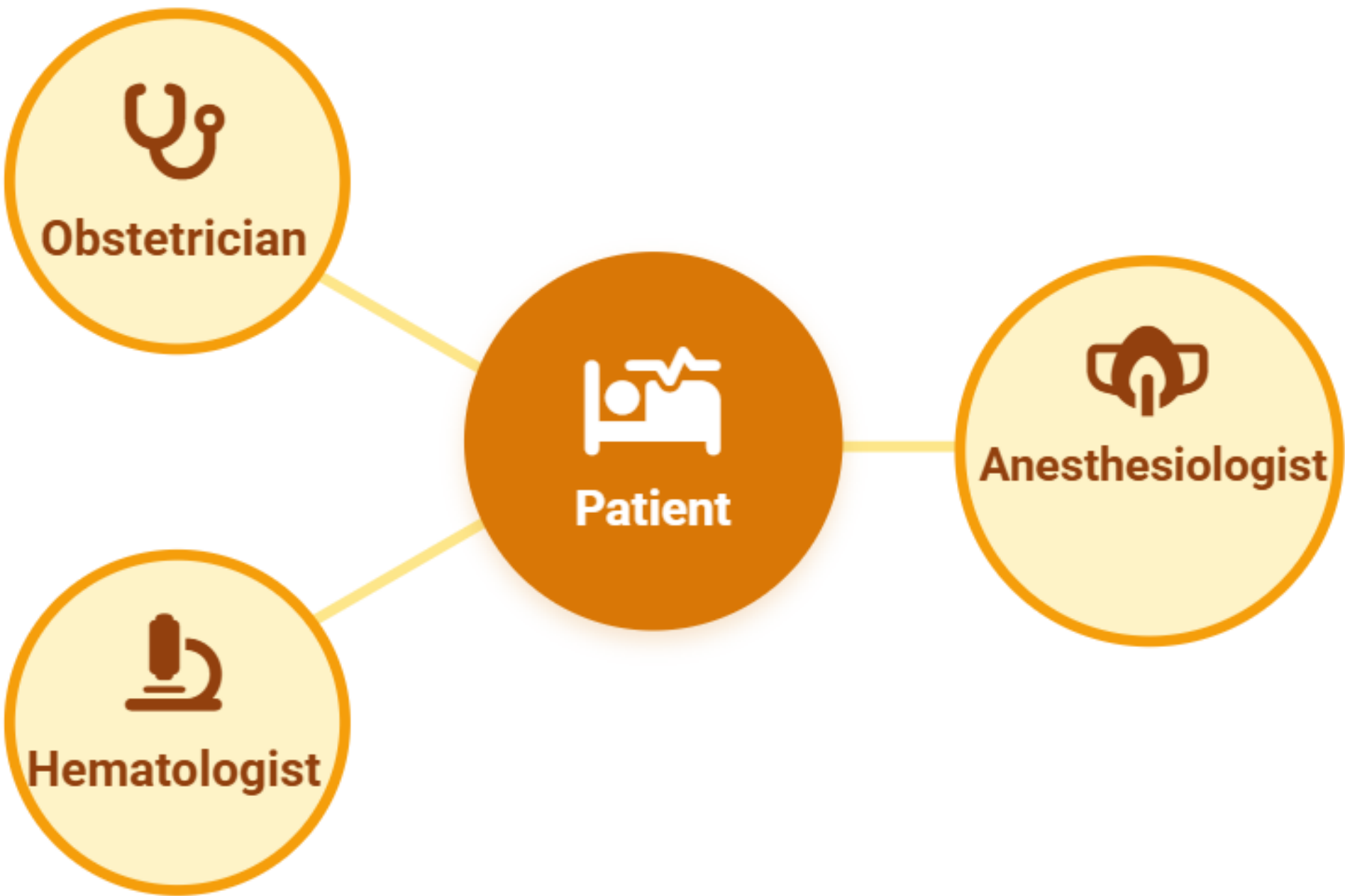


Future Research Needs

- Develop VOC/ACS risk prediction tools
- Standardize multimodal analgesia protocols
- Multi-center studies to validate management strategies

The Collaborative Triad

COORDINATED TEAM-BASED CARE



References

1. Pendergrast J, Ajayi LT, Kim E, Campitelli MA, Graves E. Sick cell disease in Ontario, Canada: an epidemiologic profile based on health administrative data. **CMAJ Open**. 2023;11(4):E725-E733. doi:10.9778/cmajo.20220145.
2. Stoddard K, Sohal M, Bedson R. Anaesthetic management of patients with sickle cell disease in obstetrics. **BJA Educ**. 2022;22(3):87-93. doi:10.1016/j.bjae.2021.11.005.
3. Proske P, Distelmaier L, Aramayo-Singelmann C, Koliastas N, Iannaccone A, Papathanasiou M, et al. Pregnancies and neonatal outcomes in patients with sickle cell disease (SCD): still a (high-)risk constellation? **J Pers Med**. 2021;11(9):870. doi:10.3390/jpm11090870.
4. Malinowski AK, Shehata N, D'Souza R, et al. Prophylactic transfusion for pregnant women with sickle cell disease: a systematic review and meta-analysis. **Blood**. 2015;126(21):2424-35. doi:10.1182/blood-2015-06-649319.