

Rethinking Reversal: Quantitative Twitch Monitoring and Postoperative Pulmonary Complications in Fetal Surgery Patients

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- **Postoperative pulmonary edema** = well-known complication of fetal surgery

Postoperative pulmonary complication (PPC) = O₂ required to keep SpO₂ > 94% on/after POD1

- **Atelectasis** identified as contributor to PPCs

↗ TOF ratio < 90%

- Residual neuromuscular blockade (NMB) due to interactions between NMB agents and tocolytics

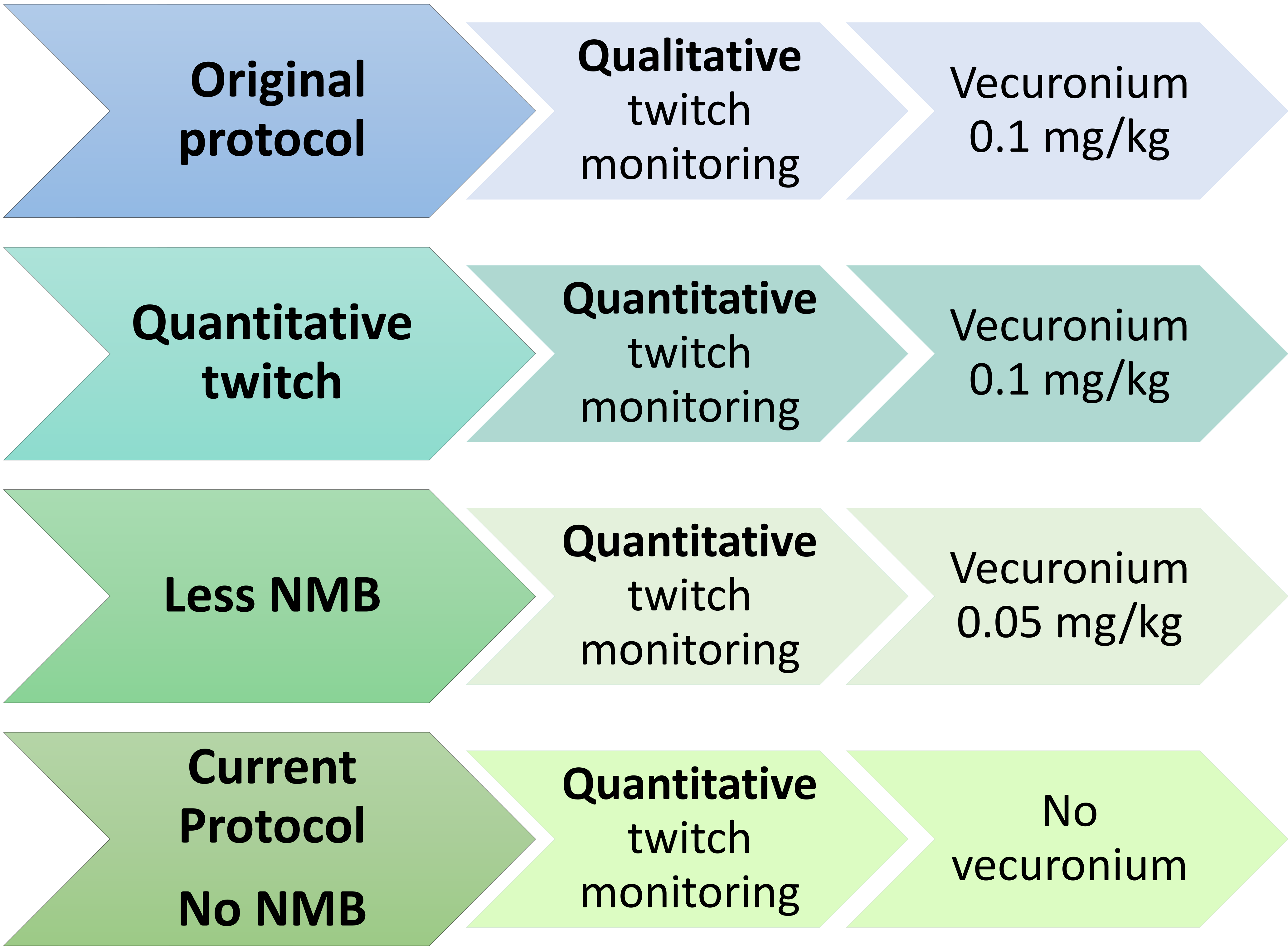
↘ MgSO₄

How do we evaluate residual NMB?
Quantitative twitch monitoring!



Methods:

- **Quality improvement (QI) project**
- **Reduce PPCs** by incorporating **quantitative** twitch monitoring into our protocol



Results:

- **Before QI intervention:**
18/51 (35%) of patients who underwent fetoscopic NTD repair required O2 on POD1

- **After QI intervention:**
5/28 (18%)* of patients who underwent fetoscopic NTD repair required O2 on POD1

*Includes patient who smoked 1 pack/day

Difference **not** statistically significant but **trending toward improvement**

Key Points

- Fetal surgery patients who receive **magnesium sulfate for tocolysis + NMB agents** are at **particularly high-risk of residual NMB** even with quantitative twitch monitoring
- In order to minimize this risk and prevent related PPCs, we have updated our protocol for fetoscopic NTD repairs:

Avoid long-acting NMB agents after RSI with succinylcholine

Use **remifentanil infusion** to maintain operating conditions during initial dissection and exteriorization/replacement of uterus

- Ongoing data collection to ascertain **impact of intervention on the incidence of PPCs** in fetal surgery patients