

Problem Statement

- Spinal anesthesia is associated with an adverse hemodynamic response, termed spinal-induced hypotension (SIH). SIH is defined by a 20% decrease in blood pressure from baseline
- Negative sequelae associated with SIH include fetal and maternal complications in obstetrics, nausea and vomiting (potential for pulmonary aspiration), prolonged hospital stays, and increased healthcare costs
- At a community-based hospital in the Mid-Atlantic region, numerous subarachnoid blocks (SAB) are administered weekly, and there lacks a standardized protocol for treating SIH
- Baseline data collection revealed hypotension occurred in 14/20 (70%) of patients receiving a spinal anesthetic

Purpose and Goals

The purpose of this quality improvement initiative was to implement and evaluate compliance with a protocol for initiating a low-dose phenylephrine infusion concomitantly with the administration of a spinal anesthetic to decrease the incidence and severity of hypotensive episodes in patients receiving spinal anesthesia.

Key Process Goal: To achieve 100% compliance with SIH Protocol

Methods

Setting: Obstetrical and general operating rooms of a community hospital in the Mid-Atlantic region

Population: Adult patients receiving spinal anesthesia for obstetrical or lower extremity orthopedic procedures

Intervention: SIH Protocol creation and implementation (scan QR code →)



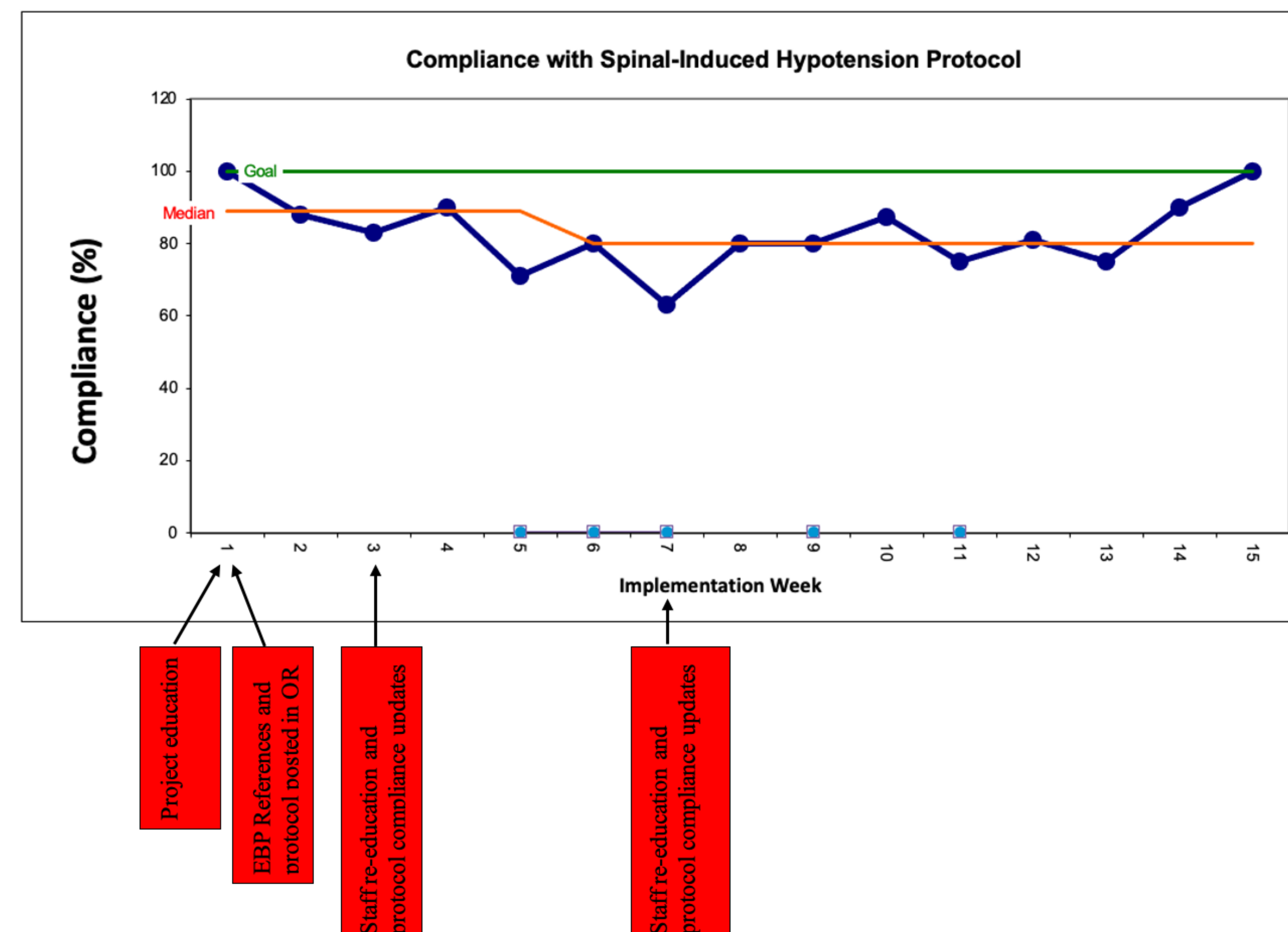
Implementation Strategies and Tactics: Mobilization of a team with buy-in from anesthesia leadership, institution approval of SIH protocol, virtual and in-person education sessions, laminated SIH protocol posted in operating rooms, data collected weekly via chart audit and QR code survey and recorded in REDCap, weekly compliance audits and meetings with staff to conduct re-education and reminders to increase compliance rates

Measures: Data collected via manual chart audits and submission of QR project audit tool by anesthesia providers

Results

Patient Characteristics (n=92)	n	%
Total Eligible Patients	92	100
Included	86	93.4
Excluded	6	6.6

*100% of excluded patients (n=6) were excluded due to hypertension or emergency situations that did not allow the provider to initiate the phenylephrine infusion. There were no patients excluded due to a phenylephrine allergy/contraindication.



Discussion

- Implementation of the SIH Protocol improved intervention adherence by providing a structured process for anesthesia providers.
 - 100% of anesthesia providers received protocol education.
 - Anesthesia providers were compliant with the protocol during 91.8% of spinal anesthetics administered (n=79).
 - Prior to education, 0% of anesthesia providers routinely initiated a prophylactic phenylephrine infusion. Following implementation, there was an 80% median compliance rate with the SIH protocol.
 - Intermittent re-education, reminders, incentives, and compliance reports aided in increasing compliance rates.
 - Results parallel with literature stating that facilitation of practice change and adoption of evidence-based practice techniques through implementation of a process-based protocol is effective when tailored to institution-specific characteristics.
- Limitations:** anesthesia providers reluctance to change practice.

Conclusions

This practice change initiative is an evidence-based, feasible, and practical solution to attenuating SIH.

Implications for Practice:

- Implementation of a SIH Protocol is a safe and effective approach to intraoperative avoidance of SIH in patients undergoing procedures with spinal anesthesia.
- Utilizing a SIH Protocol can:
 - Improve intraoperative hemodynamic management, improve postoperative outcomes, reduce healthcare costs, and avoid detrimental complications associated with SIH.

Sustainability and Spread:

- Maintain posted guidelines in operative suites
- Designate champions to conduct ongoing compliance audits
- Provide annual education/re-education for continuing and new staff

Next Steps:

- Record % reduction in incidence and severity of SIH compared to control groups
- Further quality improvement initiatives should focus on comparing other methods of attenuating SIH, as well as combining multiple methods together such as intravenous (I.V.) ondansetron, co-loading of I.V. fluids, and other I.V. vasopressors.

References and Acknowledgments



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