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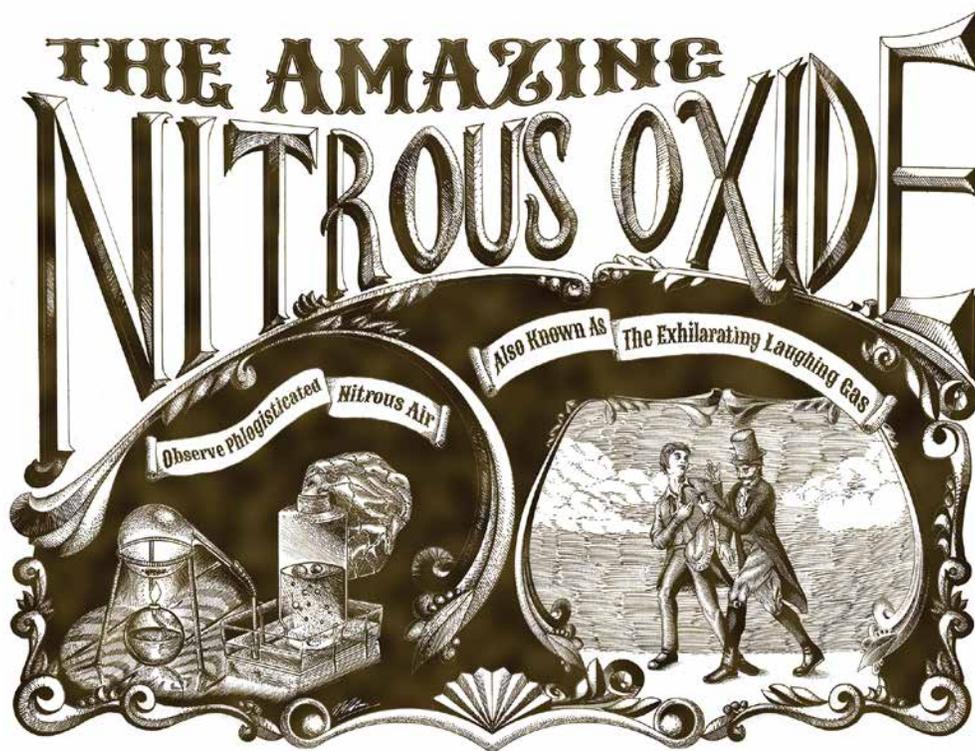
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S-291.

S-291 RISK-BASED DECISION SUPPORT THRESHOLDS IN ADULT PATIENTS UNDERGOING NON-CARDIAC SURGERY - A VALIDATION STUDY

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INTRODUCTION: A recent study in 35,904 patients identified intraoperative hypotensive exposure (blood pressure dropping below certain MAP thresholds for cumulative periods of time extending beyond certain exposure limits) to portend increased risk of 30-day postoperative mortality¹. The present study was designed to independently validate these exposure limits in subsequent cases which have not been part of the original development set.

METHODS: With IRB approval our registry was examined retrospectively for adult patients undergoing non-cardiac surgery between October 1, 2010 and June 30, 2012. Minute-to-minute mean arterial blood pressure (MAP) readings were analyzed for cumulative periods of time spent below hypotensive thresholds ranging from 75 to 45 mm Hg. Each of these exposure times were compared to the previously established exposure time limits identified to portend an increase in risk of 30-day mortality ranging from 5-50%¹. For each risk set level, the association of the number of exposure limits exceeded (modeled decision support “alerts”) with 30-day mortality was examined by using logistic regression, with p<0.05 considered significant.

RESULTS: In 44,476 patients studied, hypotensive exposure limits were exceeded in between 70% (5% risk level exposure limits) and 10% (50% risk level exposure limits) of cases (Figure 1, left axis). At each risk level, patients exceeding one or more (an average of 11 to 14) of the exposure limits portended a significantly higher 30-day mortality compared to those not exceeding any of the exposure limits (Figure 1, right axis). Depending upon the risk set, each incremental exposure time limit exceeded (modeled decision support “alert”) portended a 5-10% compounding further increase in the odds ratio of 30-day mortality (Figure 1, right axis, blue confidence interval). At each risk set level, exceeding any of the respective exposure time limits for progressively lower MAP thresholds was progressively less common in incidence and associated with a progressively greater increase in portended 30-day mortality (Figure 2).

DISCUSSION: The present data validate previous findings and suggest that hypotensive exposures alone, without any additional information about baseline or procedural risk, are able to identify patients at increased risk for death within 30 days of surgery. Prospective studies are needed to test if this increased risk can potentially be modified by minimizing hypotensive exposure during surgery.

REFERENCES:

1. Stapelfeldt WH, Dalton J, Bromley P, Takla G, Cywinski J, Reynolds M, Ghosh B. Risk-based decision support thresholds for hypotension in adult patients undergoing non-cardiac surgery. American Society of Anesthesiologists Meeting, 2012.

