

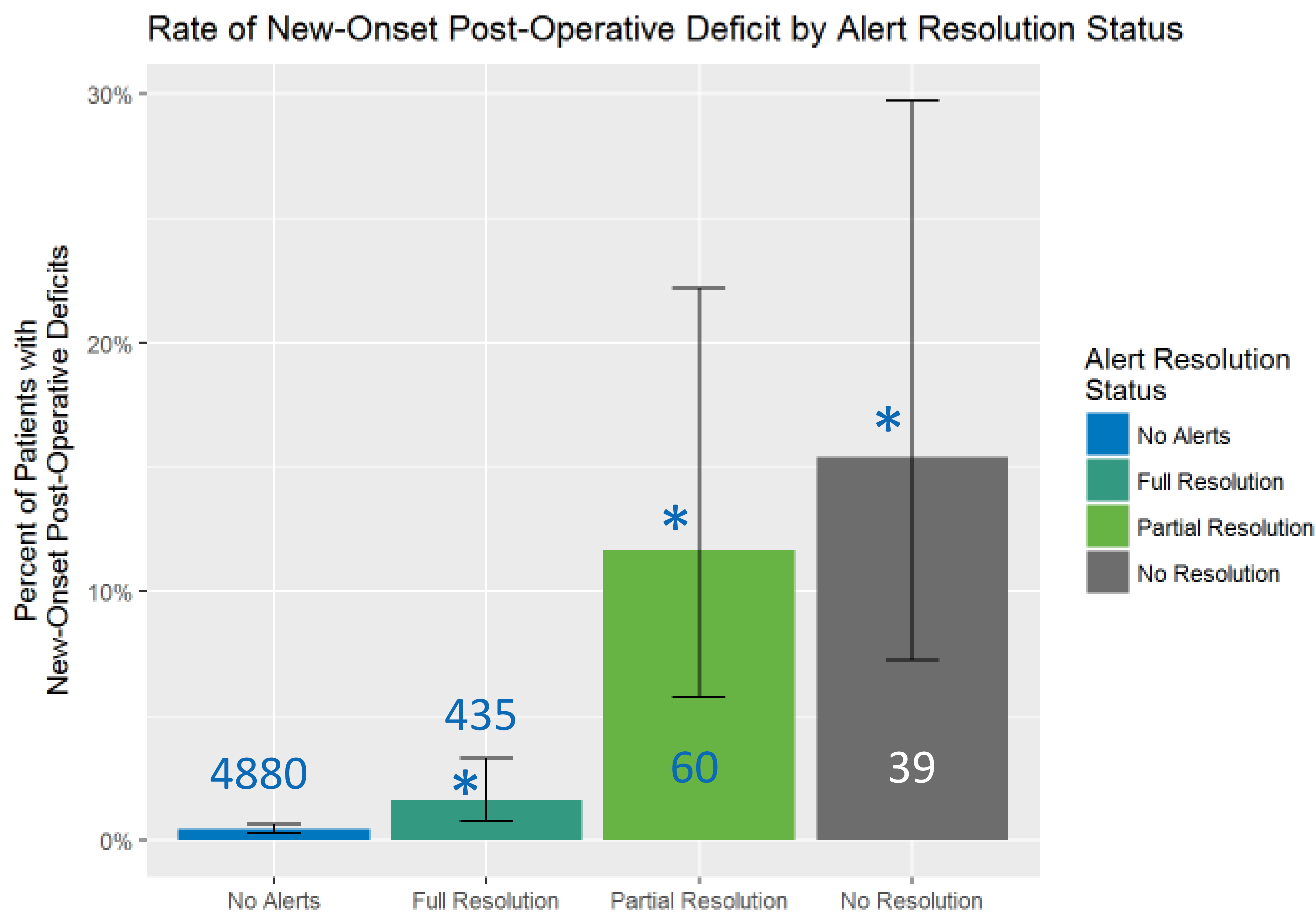
PURPOSE

Intraoperative neuromonitoring (IONM) aids surgeons in identifying episodes of evolving cerebral hypoxia during carotid endarterectomy (CEA) surgery, and prompts intervention to reduce risk of new onset postoperative neurologic deficit. We quantified the incidence of neuromonitoring change in a large series of CEA procedures and examined relationships between intraoperative resolution of neuromonitoring change and new onset neurologic deficit postoperatively.

METHODS

A multi-institutional database (SpecialtyCare Operative Procedural Registry, SCOPE[™]) of 5,414 consecutive CEA procedures monitored between May, 2013 and October, 2016 was reviewed retrospectively. We examined postoperative neurologic deficit rates among four groups: those with no neuromonitoring changes, and those with fully-resolved, partially-resolved, and unresolved neuromonitoring changes (EEG and/or SSEP). Statistical analyses included multiple comparisons of neurologic deficit rates using logistic regression and post-hoc Tukey HSD contrasts.

RESULTS



The overall incidence of neuromonitoring change and neurologic deficits in CEAs was 9.9% and 0.76%, respectively. The incidence of new postoperative neurologic deficits was highest in procedures with unresolved or partially resolved neuromonitoring changes (15.4% and 11.7%, respectively). By comparison, deficit rates were significantly lower (1.6%) in procedures with full resolution of IONM changes ($p=0.0042$ and $p=.0012$, respectively). Overall, deficit rates were lowest (0.4%) when there were no neuromonitoring changes during surgery ($p<.01$). We also looked at the effects of age, gender, and duration of procedure (skin open to closed), and there were no significant differences with regard to presence of neuromonitoring alerts and outcome.

CONCLUSION

Neuromonitoring changes are common in CEA surgery. The degree of resolution of neuromonitoring change is quantitatively predictive of postoperative neurologic outcome. Intraoperative neuromonitoring supports additional vigilance and prompts corrective action in the face of cerebral hypoxia during CEA surgery.

DISCLOSURES

All of the authors are employees of SpecialtyCare.