Effect of an enhanced recovery protocol on length of stay and readmission rate following endoscopic endonasal resection of pituitary adenomas at a large tertiary care center

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Introduction

- Reducing length of stay (LOS) and readmission improve healthcare value and patient outcomes.
- Standardized peri-operative protocols may facilitate earlier discharge without compromising patient safety.
- Large data analyses investigating the utility of these protocols following surgery using an endoscopic endonasal approach (EEA) for pituitary adenomas are lacking.

Purpose

To evaluate LOS and readmission rate prior to and after implementation of formal peri-operative management protocols in patients undergoing EEA for pituitary adenoma.

Methods

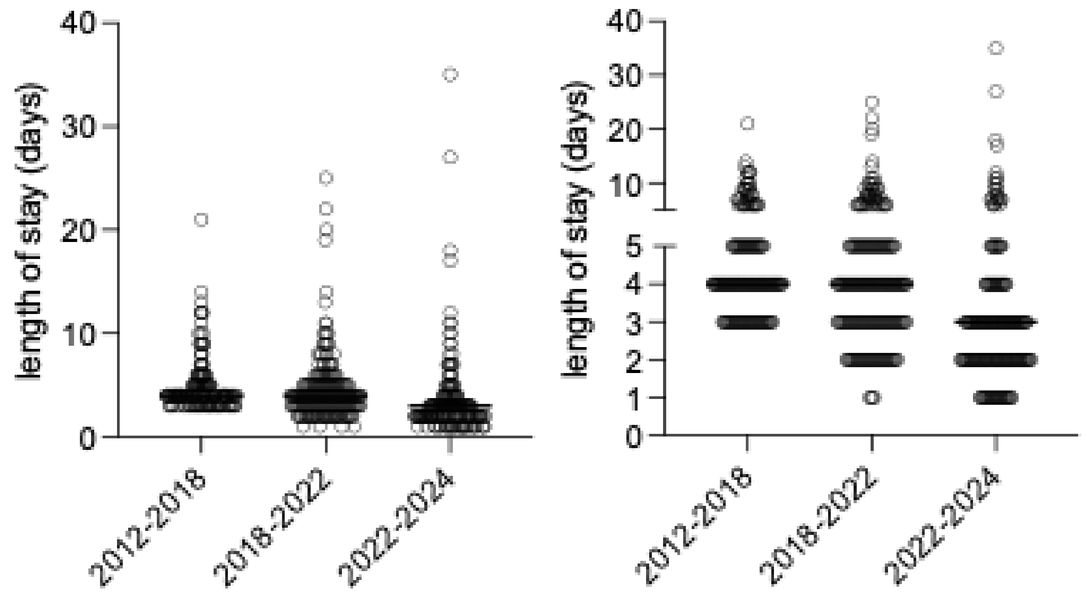
This single institution, retrospective study was conducted with data obtained from the EMR at NYU Langone Health. A total of 594 patients who underwent an EEA for resection of primary or recurrent pituitary adenoma between 2012-2024 were included.

Patients were categorized into 3 separate cohorts. Cohort 1 (n=167) was defined as patients treated between 2012-2018 with no formal post-operative management hospital policy. Cohort 2 (n=225) was defined as patients treated between 2018-2022 with a defined post-operative hospital policy. Cohort 3 (n=202) was defined as patients treated between 2022-2024 under an expedited recovery after surgery (ERAS) protocol. One patient was excluded as an outlier for an abnormal length of stay (LOS) >190 days. One-way analysis of variance (ANOVA) and post-hoc Tukey's test were used compare various parameters.

Results

Cohort	Mean LOS	Median LOS	Intraop CSF
2012-2018	4.98d	4d	49%
2018-2022	4.55d	4d	47%
2022-2024	3.53d	3d	39%

Cohort	Intraop LD	Mean LD length	Readm. Rate
2012-2018	12%	4.52d	18%
2018-2022	14%	5.1d	16%
2022-2024	9%	4.67d	8%



Results

Implementation of an ERAS protocol significantly reduced LOS when compared to a standard hospital policy (mean 3.53 days vs. 4.55 days, $p = 0.0031$) and no formal policy (mean 3.53 days vs. 4.98 days, $p = <0.0001$). Incidence of intra-operative CSF leak was 49% (Cohort 1), 47% (Cohort 2), and 39% (Cohort 3).

Use and duration of intraoperative lumbar drain was 12% with mean 4.52 days (Cohort 1), 14% with mean 5.1 days (Cohort 2), and 9% with mean 4.67 days (Cohort 3). Readmission rates reduced with implementation of formal hospital policy (16% vs. 18%), and more-so with an ERAS protocol (8%).

Conclusions

An ERAS protocol significantly reduced LOS with a reduction in readmission rate in this patient population, suggesting that expeditious peri-operative discharge may reduce healthcare costs while simultaneously improving patient safety.

References

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