

“Distinguish between bipolar, vessel sealing and ultrasonic technologies for laparoscopic procedures, emphasizing their respective precision and hemostatic capabilities”

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- # Introduction

The study aimed to compare surgical tools, the bipolar ,vessel sealer and the Harmonic Scalpel (HS), in total laparoscopic hysterectomy procedures, focusing on estimated blood loss and postoperative complications



- # Objective:

- The objective of this study was to evaluate the effectiveness of the bipolar vessel sealer compared to the Harmonic Scalpel in total laparoscopic hysterectomy (TLH) and other critical surgeries. (TLH is a minimally invasive surgical procedure used to remove the uterus, and reducing intraoperative blood loss is crucial for improving patient outcomes.)
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Research Questions

1. How does the cost-utility of laparoscopic Ultrasonic as compared to bipolar vessel sealer in terms of health-related quality of life (HRQoL) in complicated surgery cases ?
2. What is the incremental cost-effectiveness ratio (ICER) of laparoscopic appendectomy compared to open appendectomy in the hysterectomy cases?
3. Which is more significant if we compare ultrasonic to vessel sealer in terms of less blood loss and quick healing time?



Methods:

- This was a retrospective study conducted at various hospital in Delhi NCR , India. A total of 50 patients who underwent various surgeries were included in the study and randomized into two groups based on the surgical instrument used: bipolar vessel sealer group and Harmonic Scalpel group. Both groups were matched for homogeneity to ensure a fair comparison.

Methodology

1. Material and Methods:

- **Study Design:** Descriptive Type
- **Setting:** It Would be Secondary Research with Goals of Compiling Data from Consultation, Interview on Vessel sealer to Surgeons of Different Specialty.
- **Study Population:** Surgeons of Gynae ,Oncology ,General ,Gastroenterology, Urology Specialty.
- **Sample Source:** Primary and Secondary Research.
- **Study Tool:** MS Excel by Analyzing the Survey of KOL and Surgeons
- **Duration of Study:** 3 Months
- **Sample Size:** 50

Sample Size Calculator

Result

Sample size: **385**

This means 385 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within $\pm 5\%$ of the measured/surveyed value.

Confidence Level: (?) 95% ▼

Margin of Error: (?) 5 %

Population Proportion: (?) 50 % Use 50% if not sure

Population Size: (?) Leave blank if unlimited population size.

Calculate



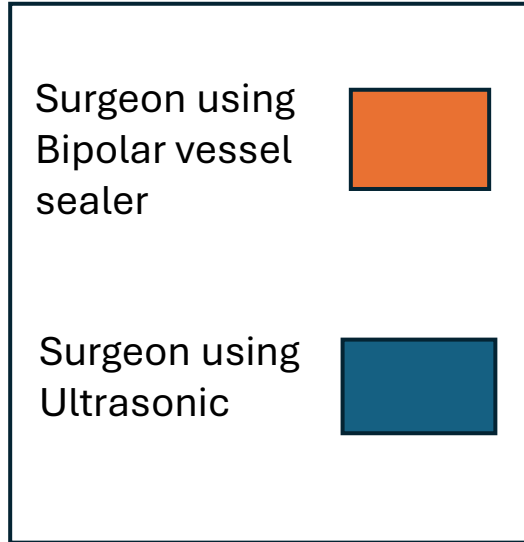
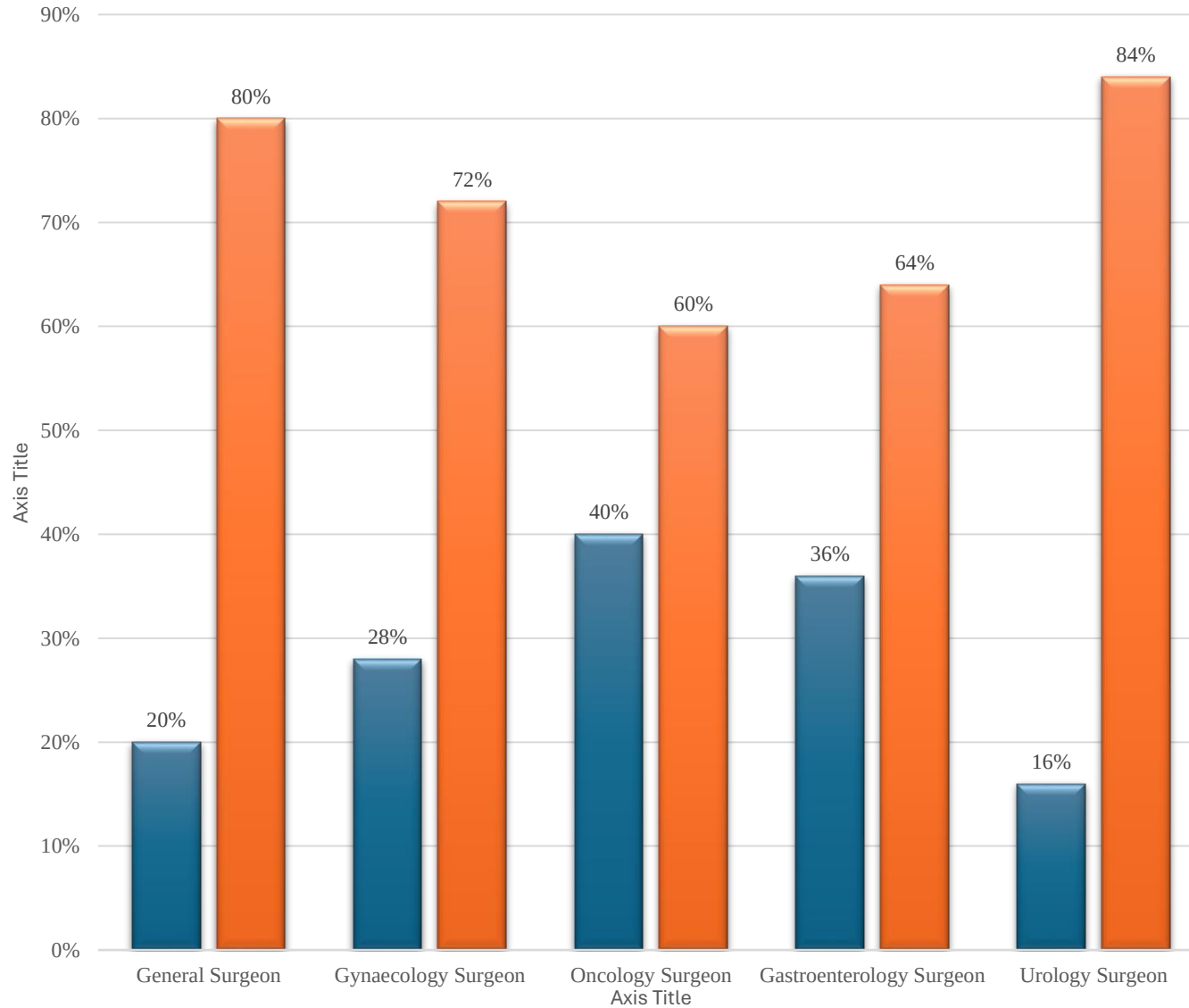
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Advanced bipolar device vs Ultrasonic Energy device

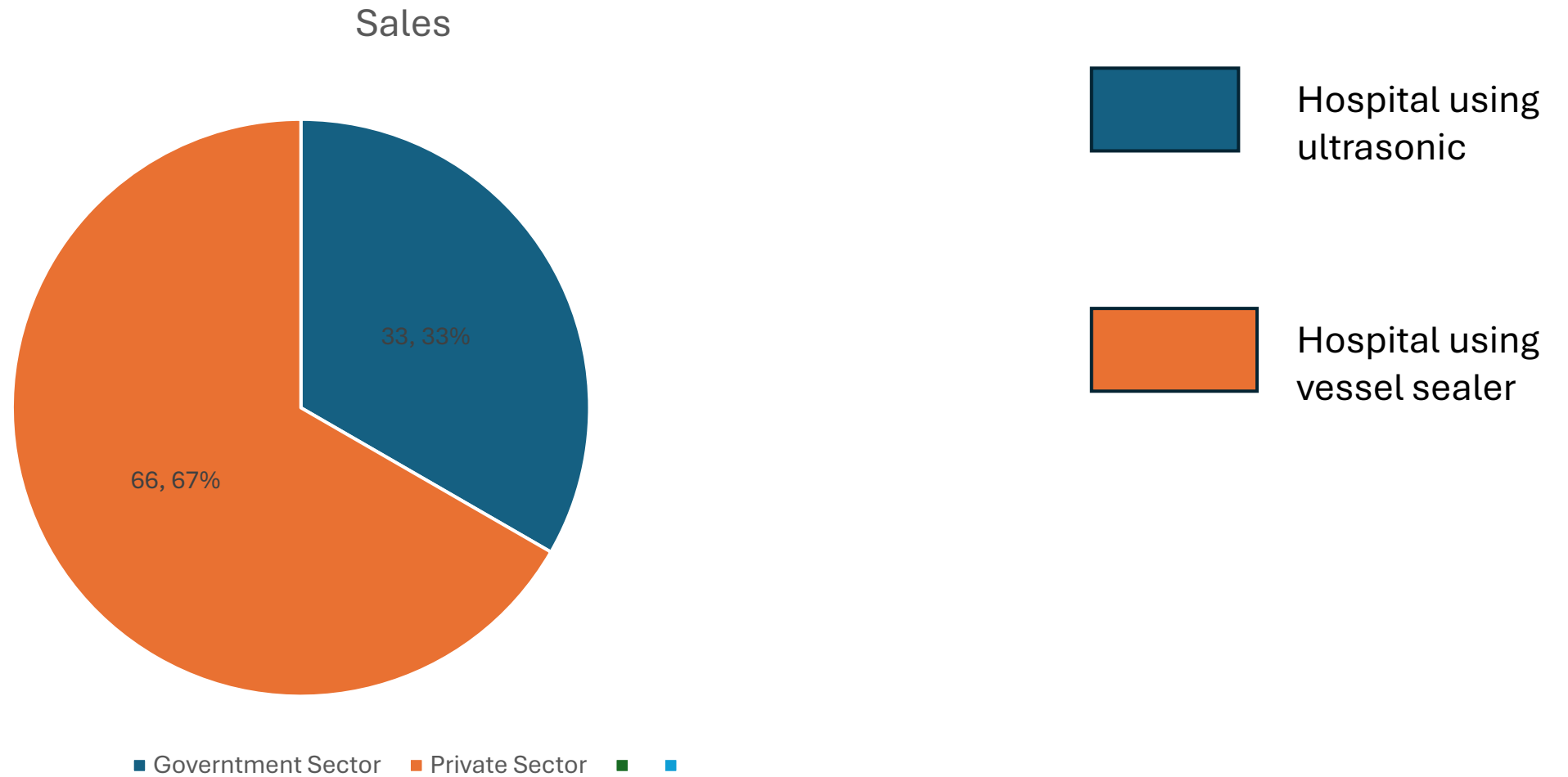


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- Ultrasonic vessel sealers employ high-frequency sound waves to coagulate and seal blood
 - A vessel sealing system is a medical device that uses bipolar electrothermal energy to seal blood vessels by denaturing collagen and elastin in the vessel wall, effectively occluding the vessel and reducing blood loss during surgical procedures

Preference of Vessel sealer and Ultrasonic device



Hospitals Using bipolar vessel sealer and ultrasonic



Suggestions

- As per the data obtained , if the company ultrasonic centric want to grow in competitive market they have to target big Hospitals frequently .
- Price of ultrasonic is 5 times more than vessel sealer that makes customer to move towards other option.
- Vessel sealer got connect to available surgical unit , not require any special ESU to connect ,whereas ultrasonic required there own capital device to operate.

Results

- The primary outcome measured was estimated blood loss during surgery. The study found that patients in the bipolar vessel sealer group had significantly less blood loss compared to those in the Harmonic Scalpel group. This suggests that the bipolar vessel sealer is more effective in controlling intraoperative bleeding during TLH.
- Secondary outcomes included the incidence of postoperative complications. The study did not find a statistically significant difference in the occurrence of postoperative complications between the two groups. This indicates that both instruments are similarly safe in terms of postoperative outcomes.



Conclusions

- Based on the findings, the study concludes that the bipolar vessel sealer is a reliable and safe tool for reducing intraoperative blood loss in patients undergoing TLH. The results imply potential advantages of using the bipolar vessel sealer over the Harmonic Scalpel in terms of surgical blood management. However, I acknowledge the need for further randomized controlled trials (RCTs) to confirm these findings and explore other potential benefits of the bipolar vessel sealer in TLH procedures.



Thank You