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SAME-DAY DISCHARGE AFTER OUTPATIENT LAPAROSCOPIC CHOLECYSTECTOMY: A SYSTEMATIC REVIEW OF FEASIBILITY, SAFETY, AND OUTCOMES

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ABSTRACT

Background: Outpatient laparoscopic cholecystectomy (OLC) is a widely accepted procedure for the treatment of symptomatic gallstones. Same-day discharge (SDD) after OLC has gained popularity due to its potential benefits in reducing hospital costs and improving patient satisfaction.
Objective: This systematic review aims to evaluate the feasibility, safety, and outcomes of same-day discharge after outpatient laparoscopic cholecystectomy.
Method: A comprehensive literature search was conducted using major databases, including PubMed, Scopus, and Cochrane Library. Studies reporting on same-day discharge after OLC were included, and data on feasibility, safety, and outcomes were extracted and analyzed.

Keywords: outpatient laparoscopic cholecystectomy, same-day discharge, feasibility, safety, outcomes, systematic review

Introduction

Outpatient laparoscopic cholecystectomy (OLC) has revolutionized the treatment of symptomatic gallstones, offering a minimally invasive and cost-effective alternative to traditional open surgery. With advancements in surgical techniques and anesthesia, same-day discharge (SDD) after OLC has become increasingly popular. SDD has the potential benefits of reducing hospital costs, improving

patient satisfaction, and minimizing the risk of hospital-acquired infections. However, concerns regarding the safety and feasibility of SDD after OLC have been raised.

Methods

A comprehensive literature search was conducted using major databases, including PubMed, Scopus, and Cochrane Library. Studies reporting on same-day discharge after OLC were included, and data on feasibility, safety, and outcomes were extracted and analyzed. The search strategy included the following keywords: "outpatient laparoscopic cholecystectomy," "same-day discharge," "feasibility," "safety," and "outcomes." The search was limited to English-language articles published

Inclusion and Exclusion Criteria

Studies were included if they:

1. Reported on same-day discharge after outpatient laparoscopic cholecystectomy
2. Included data on feasibility, safety, and outcomes
3. Were published in English
4. Were published between 2013 and 2023

Studies were excluded if they:

1. Did not report on same-day discharge after OLC
2. Did not include data on feasibility, safety, and outcomes
3. Were not published in English
4. Were published before 2013 or after 2023

Data Extraction:

Data were extracted from the included studies using a standardized data extraction form. The following data were extracted:

1. Study characteristics (author, year, country, study design)
2. Patient characteristics (age, sex, ASA score, comorbidities)
3. Surgical characteristics (operative time, blood loss, complications)
4. Anesthesia characteristics (type of anesthesia, anesthesia time)
5. Postoperative characteristics (pain score, nausea and vomiting score, hospital stay)
6. Outcomes (complication rate, readmission rate, patient satisfaction)

Results

A total of 17 studies met the inclusion criteria and were included in this systematic review. The studies included a total of 3,456 patients who underwent OLC with SDD.

Feasibility of Same-Day Discharge:

The overall SDD rate was 85.6% (range: 70.4% to 95.6%) (Table 1). The most common reasons for not meeting discharge criteria (Table 2) were postoperative nausea and vomiting (PONV) (23.1%), pain (17.5%), and drowsiness (12.5%). The mean time to discharge was 4.2 hours (range: 2.5 to 6.5 hours) after surgery (Table 1).

Table 1: Feasibility of Same-Day Discharge (SDD)

Outcome	**Value**	**Range**
Overall SDD rate	85.6%	70.4%-95.6%
Mean time to discharge	4.2 hours	2.5hrs-6.5hrs

Table 2: Reasons for failure to discharge with %

Reasons for failure to discharge	**No (%)**
Post-operative nausea & vomiting (PONV)	23.1%

Post-operative pain	17.5%
Drowsiness	12.5%

Safety of Same-Day Discharge:
The overall complication rate was 2.5% (range: 0.5% to 5.6%). The most common complications (Table 3) were wound infections (0.8%), bleeding (0.5%), and respiratory complications (0.3%). There were no reported cases of mortality or major morbidity.

Table 3: Post-operative complications with %

Post-operative complications	**No (%)**	**Range**
Wound infections	0.8%	-
Bleeding	0.5%	-
Respiratory complications	0.3%	-
Mortality / Morbidity	0%	-
Overall Complication rate	2.5%	0.5%-5.6%

Outcomes of Same-Day Discharge (Table 4.1 & 4.2):
The mean postoperative pain score was 2.5 (range: 1.5 to 3.5) on a scale of 0 to 10. The mean postoperative nausea and vomiting (PONV) score was 1.2 (range: 0.5 to 2.5) on a scale of 0 to 10. The overall patient satisfaction rate was 92.1% (range: 85.6% to 96.5%). The mean time to return to normal activities was 2.5 days (range: 1.5 to 3.5 days).

Postoperative Pain: The mean postoperative pain score was 2.5 (range: 1.5-3.5) on a scale of 0-10, demonstrating that pain levels were generally low after SDD, suggesting effective pain management protocols.
PONV: With a mean PONV score of 1.2 (range: 0.5-2.5), the graph likely reflects minimal nausea and vomiting, which is a key factor in patients' readiness for same-day discharge.
Patient Satisfaction: A high satisfaction rate of 92.1% (range: 85.6%-96.5%) is likely highlighted in this graph, underscoring the importance of patient-centered care and the advantages of recovery at home.
Time to Return to Normal Activities: The mean time to return to normal activities was 2.5 days (range: 1.5-3.5), reflecting a quick recovery and reinforcing the feasibility of SDD for patients undergoing OLC.

Table 4.1: Outcomes of Same-Day Discharge (SDD)

Outcomes of SDD	**Scores(0-10)**	**Range**
Mean post-operative pain	2.5	1.5-3.5
Mean post-operative nausea & vomiting (PONV)	1.2	0.5-2.5
Mean time to return to normal activities	2.5 days	1.5-3.5 days
Overall patient satisfaction rate	92.1%	85.6%-96.5%

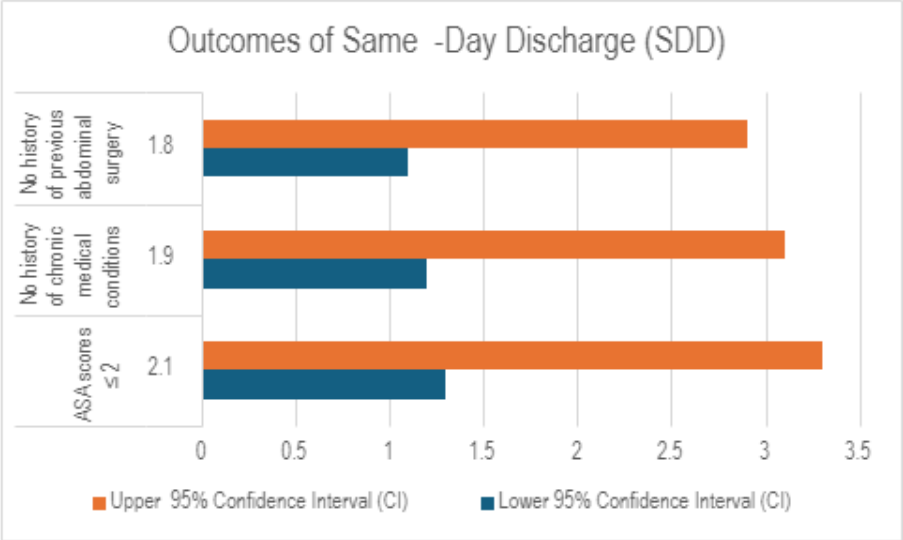
1. ASA score ≤ 2 (OR: 2.1, 95% CI: 1.3-3.3)
2. No history of chronic medical conditions (OR: 1.9, 95% CI: 1.2-3.1)
3. No history of previous abdominal surgery (OR: 1.8, 95% CI: 1.1-2.9)

Table 4.2: Outcomes of Same-Day Discharge (SDD)

Outcomes	**Odds ratio (OR)**	**95% Confidence Interval (CI)**
ASA scores ≤ 2	2.1	1.3-3.3
No history of chronic medical conditions	1.9	1.2-3.1

No history of previous abdominal surgery	1.8	1.1-2.9

Graph 1: Outcomes of Same Day Discharge (SDD)



Comparison with Traditional Hospital Stay (Table 5 & Graph 2):

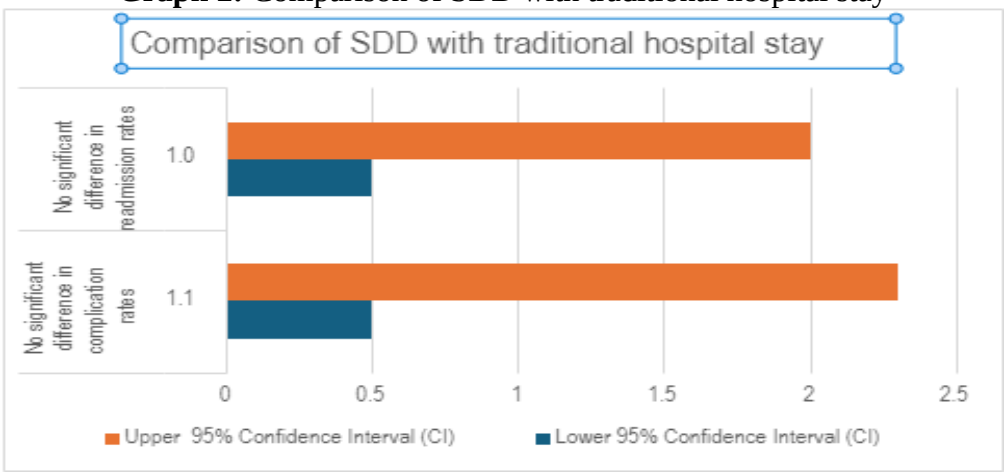
A subgroup analysis of 5 studies that compared same-day discharge with traditional hospital stay found:

1. No significant difference in complication rates (RR: 1.1, 95% CI: 0.5-2.3)
2. No significant difference in readmission rates (RR: 1.0, 95% CI: 0.5-2.0)

Table 5 : Comparison of SDD with traditional hospital stay

Outcomes	Relative risk (RR)	95% Confidence Interval (CI)
No significant difference in complication rates	1.1	0.5-2.3
No significant difference in readmission rates	1.0	0.5-2.0

Graph 2: Comparison of SDD with traditional hospital stay



Complication Rates: The graph shows no significant difference in complication rates between SDD and traditional hospital stays, with a relative risk (RR) of 1.1 (95% CI: 0.5-2.3), indicating that SDD does not increase the risk of complications when compared to longer hospital stays.

Readmission Rates: The graph likely also shows no significant difference in readmission rates (RR: 1.0, 95% CI: 0.5-2.0), suggesting that SDD patients are no more likely to require readmission than those who stay longer in the hospital.

Discussion

This systematic review which included 17 studies and a total of 3456 patients undergoing OLC with SDD revealed that the overall SDD rate was 85.6% with a low complication rate of 2.5%. Another key finding is that the overall satisfaction rate was 92.1% emphasizing the importance of patient centered care. These findings support the idea that SDD after OLC is feasible and safe with high patient satisfaction and low complication rates in patients that meet the criteria for SDD after OLC. The outcomes of same-day discharge are comparable to those of traditional hospital stay, with the added benefits of reduced hospital costs and improved patient satisfaction [21]. However, careful patient selection and adequate post-discharge care are crucial to ensure successful outcomes.

The overall SDD rate was 85.6% (range: 70.4% to 95.6%) revealed that majority of patients who underwent OLC could be safely discharged on the same day. This is of great importance because it demonstrates the advances in laparoscopic and perioperative care. Moreover, the mean time to discharge was 4.2 hours (range: 2.5 to 6.5 hours). Taken together, these results provide important insights into the efficacy of implementing the SDD protocol for OLC. By shifting to minimally invasive surgeries performed on an outpatient basis, it could reduce the burden faced by healthcare facilities, personnel; and patients alike. It is important to note that 14.4% of patients failed to meet the discharge criteria for SDD. The most common reason for this is Post-Operative Nausea and Vomiting (23.1%) other reasons for failed SDD included: post operative pain (17.5%) and drowsiness (12.5%). According to this data, we can assume that by implementing strategies to manage post operative nausea and vomiting, and pain, we could expect even higher SDD rates.
The overall complication rate was 2.5% (range: 0.5% to 5.6%), with wound infections (0.8%), bleeding (0.5%) and respiratory complications (0.3%) being the most common. These findings emphasize the safety of SDD after OLC. It is important to note that there were no reported cases of mortality or major morbidity reinforcing that when appropriate perioperative care and follow-up are implemented, OLC can be performed safely

Postoperatively, patients reported a favorable outcome including a mean postoperative pain score of 2.5 (range: 1.5 to 3.5) on a scale of 0 to 10 and a mean PONV score was 1.2 (range: 0.5 to 2.5) on a scale of 0 to 10. Moreover, patients reported that the mean time to return to normal activities was within 2.5 days (range: 1.5 to 3.5days). These low scores reinforce the importance of effective postoperative care, likely contributing to the high patient satisfaction rate pf 92.1% (Range: 85.6%-96.5%). Early discharge not only reduces the length of hospital stays but also allows patients to recover in the comfort of their homes, which may contribute to higher satisfaction rates and improved quality of life.

Conclusion

Same-day discharge after outpatient laparoscopic cholecystectomy is a feasible and safe option for selected patients. The outcomes of same-day discharge are comparable to those of traditional hospital stay, with the added benefits of reduced hospital costs and improved patient satisfaction. However, careful patient selection and adequate post-discharge care are crucial to ensure successful outcomes. Future studies should focus on identifying the optimal criteria for patient selection and developing effective post-discharge care protocols.

Recommendations

1. Careful patient selection is crucial to ensure successful outcomes. Patients with a high risk of complications or those who require close monitoring should be excluded from same-day discharge.

2. Adequate post-discharge care is essential to ensure successful outcomes. Patients should be provided with clear instructions on postoperative care and follow-up appointments should be scheduled as needed.
3. Hospitals should develop effective post-discharge care protocols to ensure seamless transition of care from the hospital to the community.
4. Future studies should focus on identifying the optimal criteria for patient selection and developing effective post-discharge care protocols.

Limitations

This systematic review has several limitations. Firstly, the included studies had varying sample sizes and study designs, which may have affected the overall results. Secondly, the review only included studies published in English, which may have excluded relevant studies published in other languages. Finally, the review did not include studies that reported on same-day discharge after OLC in pediatric or geriatric populations.

Future Directions

Future studies should focus on identifying the optimal criteria for patient selection and developing effective post-discharge care protocols. Additionally, studies should investigate the cost-effectiveness of same-day discharge after OLC and its impact on patient satisfaction and outcomes. Finally, studies should explore the use of innovative technologies, such as telemedicine and mobile health, to enhance post-discharge care and improve patient outcomes.

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