



Low-Dose Chlorhexidine Gluconate versus Saline Wound Irrigation in Revision Hip Arthroplasty: A Propensity Score-Matched Analysis



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Background

- Surgical site infections (SSI) and their associated complications can negatively affect the successful postoperative recovery after revision hip surgery.
- At present, there is no gold standard wound irrigation solution that may potentially reduce infections postoperatively.

Demographics	Normal Saline N=91	0.05% CHG N=91	P-Value
Age	64.34 ± 15.77	65.70 ± 13.67	0.514
Sex			1.000
Male	47 (51.64%)	47 (51.64%)	
Female	44 (48.35%)	44 (48.35%)	
CCI	2.75 ± 2.73	3.46 ± 2.32	0.031
BMI	30.38 ± 7.82	29.90 ± 7.01	0.688
DM	11 (12.09%)	19 (20.88%)	0.117
Smoking			0.918
No	60 (65.93%)	59 (64.84%)	
Former	20 (21.98%)	23 (25.27%)	
Current	11 (12.09%)	9 (9.89%)	
ASA	2.77 ± 0.73	2.67 ± 0.60	0.599

Table 1. Demographic variables between NS and CHG groups.

Perioperative Data	Normal Saline N=91	0.05% CHG N=91	P-Value
Indicated due to infection	5 (5.49%)	20 (21.98%)	0.002
Operative Time (minutes)	180.53 ± 86.49	165.13 ± 68.1	0.112
Length of stay	2.53 ± 2.27	4.21 ± 3.80	< 0.001
Discharge to Home	80 (87.91%)	70 (76.92%)	< 0.001
Antibiotic on Discharge	11 (12.09%)	45 (49.45%)	< 0.001

Table 2. Perioperative data between NS and CHG groups.

Postoperative Data	Normal Saline N=91	0.05% CHG N=91	P-Value
ED visit within 30-days	12	17	0.567
Surgically related ED within 30-days	12	16	0.339
Readmission within 30-days	7	9	0.62
ED visit within 90-days	8	16	0.088
Surgically related ED within 90-days	9	14	0.278
Readmission within 90-days	11	11	1
SSI	3	4	0.708
Reoperation within 2 years	13	15	0.685

Table 3. Postoperative outcomes of interest between NS and CHG groups.

Complication	Normal Saline N=14	0.05% CHG N=24	P-Value
Dislocation	3	1	0.317
Wound Drainage	2	1	0.365
Ground Level Fall	2	3	0.596
Heterotopic Ossification	1	0	1
Wound Dehiscence	1	0	1
SSI	3	4	0.708
PJI	1	1	1
Pain	1	3	1
Post Operative Anemia	2	9	0.275
Numbness	0	2	0.539
CVA	0	1	1
Hypotension	0	1	1
Foot Drop	0	1	1

Table 4. In depth breakdown of complications between NS and CHG groups.

Results

- A total of 182 patients, n = 91 normal saline (NS) and n = 91 CHG, were propensity score matched.
- Average age 64 ± 34.74, n = 91 vs 65.70 ± 13.67, n = 91; p = 0.514, BMI 30.38 ± 7.82, n = 91 vs 29.90 ± 7.01, n = 91; p = 0.688.
- Postoperatively, there was no difference between ED visits within 30 (p = 0.567) or 90 days (p = 0.088).
- Readmission rates were also comparable for 30- and 90-days, (p = 0.62) and (p = 1.00), reoperation rates were 13% and 15%, respectively (p = 0.685).

Study Questions:

1. Does 0.05% low-dose chlorhexidine gluconate (CHG) wound irrigation reduce the rate of SSI's and related complications after revision hip surgery?
2. Is there a difference in the incidence of Emergency Department (ED) visits and complications within 30-and 90-days postoperatively?

Methods:

- Institutional joint reconstruction registry was screened
- January 2022 to July 2024
- Patients ≥18 years old
- Revision or conversion to total hip arthroplasty (THA) with intraoperative wound irrigation utilizing saline only and saline plus CHG.
- A total of 182 patients
- Compared demographic, perioperative, and postoperative variables.

Conclusions:

- This retrospective cohort study provides preliminary outcomes regarding NS vs CHG in wound irrigation and lavage for revision and conversion THA.
- Although the sample of CHG has more comorbidities, postoperative ED visits, complications, and revision surgeries were comparable.
- This may highlight the efficacy of CHG use during revision surgeries.
- CHG irrigation may enhance early postoperative outcomes; however, continued investigation with larger cohorts is essential to validate these findings.