

Ready-to-Use Versus Intraoperatively Prepared (“Homebrew”) Povidone-Iodine Irrigation in Primary Total Hip Arthroplasty: Early Infection-Related Outcomes

Laith Bahlouli BA, Anzar Sarfraz MD, Farouk Khury MD, Ran Schwarzkopf MD MSc, Vinay K. Aggarwal MD
Department of Orthopedic Surgery, NYU Langone Health, New York, NY

BACKGROUND

- Povidone-iodine (PVP-I) is frequently used for antimicrobial irrigation during primary total hip arthroplasty (THA)
- Irrigation is either manually diluted and prepared intraoperatively (“homebrew”) or provided as a packaged, sterile, ready-to-use solution

OBJECTIVES

- Compare early infection-related outcomes of ready-to-use PVP-I versus homebrew PVP-I in THA

METHODS

- Inclusion: primary, unilateral, elective THA from 2021-25, 90-day follow-up
- Patients received either terminally sterilized, ready-to-use or homebrew PVP-I irrigation
- 1:1 propensity score match performed using age, sex, body mass index (BMI), diabetes status, smoking status, and American Society of Anesthesiologists (ASA) class
- Final cohort: 2,584 patients; median follow-up 1.1 years
- Primary outcome: infection-related reoperation or revision

RESULTS

- Patients receiving ready-to-use PVP-I had shorter operative time ($P < 0.001$) and length of stay ($P < 0.001$)
- Infection-related reoperation or revision did not differ between groups ($P = 0.271$)
- Wound I&D was performed in 9 patients in the ready-to-use group and 11 patients in the homebrew group ($P = 0.653$)
- Septic revision occurred in 3 patients in the ready-to-use group and 7 patients in the homebrew group ($P = 0.205$)
- No differences in aseptic reoperation ($P = 0.999$) or aseptic revision incidence ($P = 0.522$)

CONCLUSIONS

- Sterilized, ready-to-use PVP-I irrigation showed no differences in early infection-related reoperation/revision compared with homebrew PVP-I in primary THA, and was associated with shorter operative time and length of stay
- Longer follow-up needed to evaluate differences in mid- and long-term infection-free survivorship between irrigation strategies

Table 1. Baseline characteristics.

Parameter	Ready-to-Use n = 1292	Homebrew n = 1292	P-value
Age (years), median [range]	68 [24-95]	68 [18-94]	0.910
BMI (kg/m ²), median [range]	29.0 [14-64]	28.7 [16-54]	0.847
Sex, %			0.968
Men	41	41	
Women	59	59	
Race, %			0.025
White	74	72	
Black	13	14	
Other	8	7	
Not Reported	5	7	
Smoking Status, %			0.935
Current	4	4	
Former	39	38	
Never	57	58	
Diabetes, %	17	17	0.999
ASA Class, %			0.854
I	3	3	
II	64	65	
III	32	31	
IV	1	1	
CCI, mean [SD]	1.7 [2.3]	1.5 [2.2]	0.021

BMI, body mass index; kg, kilogram; m, meter; %, percent; ASA, American Society of Anesthesiologists; CCI, Charlson Comorbidity Index; SD, standard deviation. **Bold** indicates statistical significance ($P<0.05$).

Table 2. Perioperative characteristics.

Parameter	Ready-to-Use n = 1292	Homebrew n = 1292	P-value
Laterality, %			0.844
Right	52	52	
Left	48	48	
Anesthesia Type, %			0.246
Spinal	91	93	
General	9	7	
Operative Time (minutes), mean [SD]	104 [28]	112 [24]	<0.001
Length of Stay (hours), mean [SD]	29 [30]	36 [32]	<0.001
Discharge Disposition, %			0.153
Home	96	95	
SNF	4	4	
ARF	0	1	

%, percent; SD, standard deviation; SNF, skilled nursing facility; ARF, acute rehab facility. **Bold** indicates statistical significance ($P<0.05$).

Table 3. Aseptic reoperations and revisions.

Parameter	Ready-to-Use n = 1292	Homebrew n = 1292	P-value
Reoperation, n (%)	4 (0.3)	3 (0.2)	0.999
ORIF	1	2	0.999
Wound I&D	3	1	0.625
Revision, n (%)	9 (0.7)	13 (1.0)	0.522
Loosening	2	5	0.453
Instability	4	5	0.999
PPF	3	1	0.625
LLD	0	2	0.500

n, number of; %, percent; ORIF, open reduction and internal fixation; I&D, irrigation and debridement; PPF, periprosthetic fracture; LLD, leg length discrepancy. **Bold** indicates statistical significance ($P<0.05$).

Parameter	Ready-to-Use n = 1292	Homebrew n = 1292	P-value
Reoperation/Revision, n (%)	12 (0.9)	18 (1.4)	0.271
Wound I&D	9	11	0.653
Septic Revision	3	7	0.205

n, number of; %, percent; I&D, Irrigation and Debridement. **Bold** indicates statistical significance ($P<0.05$).