

Periprosthetic Joint Infection Following Hip Hemiarthroplasty: Outcomes of Conversion to Total Hip Arthroplasty Compared with Aseptic Failures

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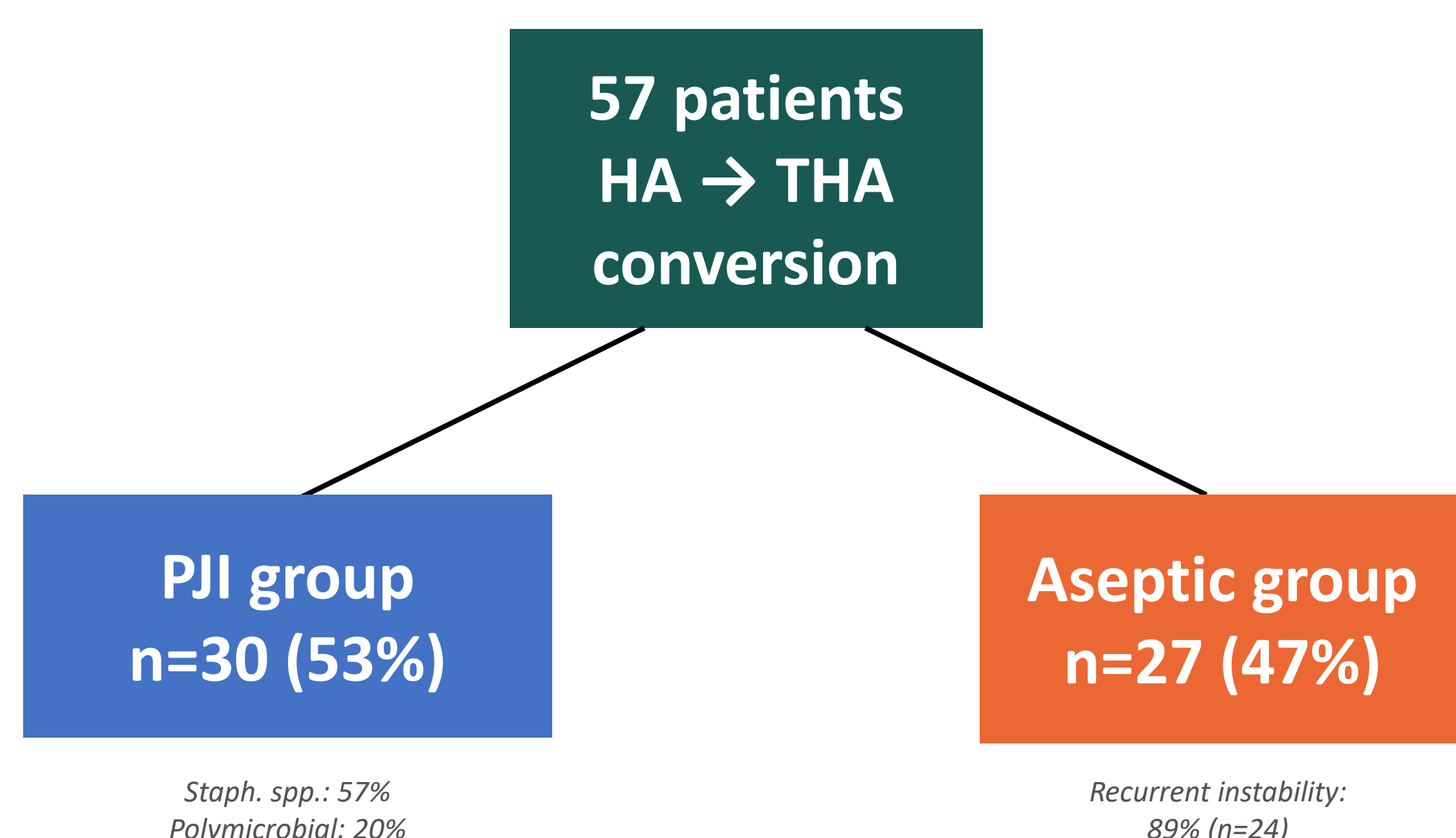
INTRODUCTION & AIM

- Hip hemiarthroplasty (HA) remains the standard surgical treatment for displaced femoral neck fractures in elderly, low-demand patients.
- Secondary conversion to total hip arthroplasty (THA) may be required due to periprosthetic joint infection (PJI) or mechanical complications.
- **Aim: to compare the epidemiology and clinical outcomes of HA-to-THA conversion performed for PJI versus aseptic complications.**

METHODS

- Single-centre retrospective study over a 10-year period.
- 57 consecutive patients converted from HA to THA (63% female; mean age 85.0 ± 6.9 years).
- **Two groups** according to the indication for revision: PJI (mainly *Staphylococcus spp.*) (n=30) versus aseptic complications (n=27).
- Comparison of baseline characteristics, postoperative complications, and mortality between groups.

FIGURE 1 — COHORT OVERVIEW



RESULTS

- Age at index HA and sex ratio were similar between groups (p=0.18 and p=0.28).
- **PJI group: higher BMI (p<0.01), lower Parker mobility score (p=0.02), more frequent cognitive impairment (p=0.02).**
- Mean interval from HA to THA conversion: 52.7 days (5–125), not significantly different between groups (p=0.10).
- At a mean follow-up of 26 months (6–80): surgical complications were more frequent in the aseptic group (p=0.016), particularly dislocation (p=0.026).
- Rates of reinfection and reoperation were similar between groups.

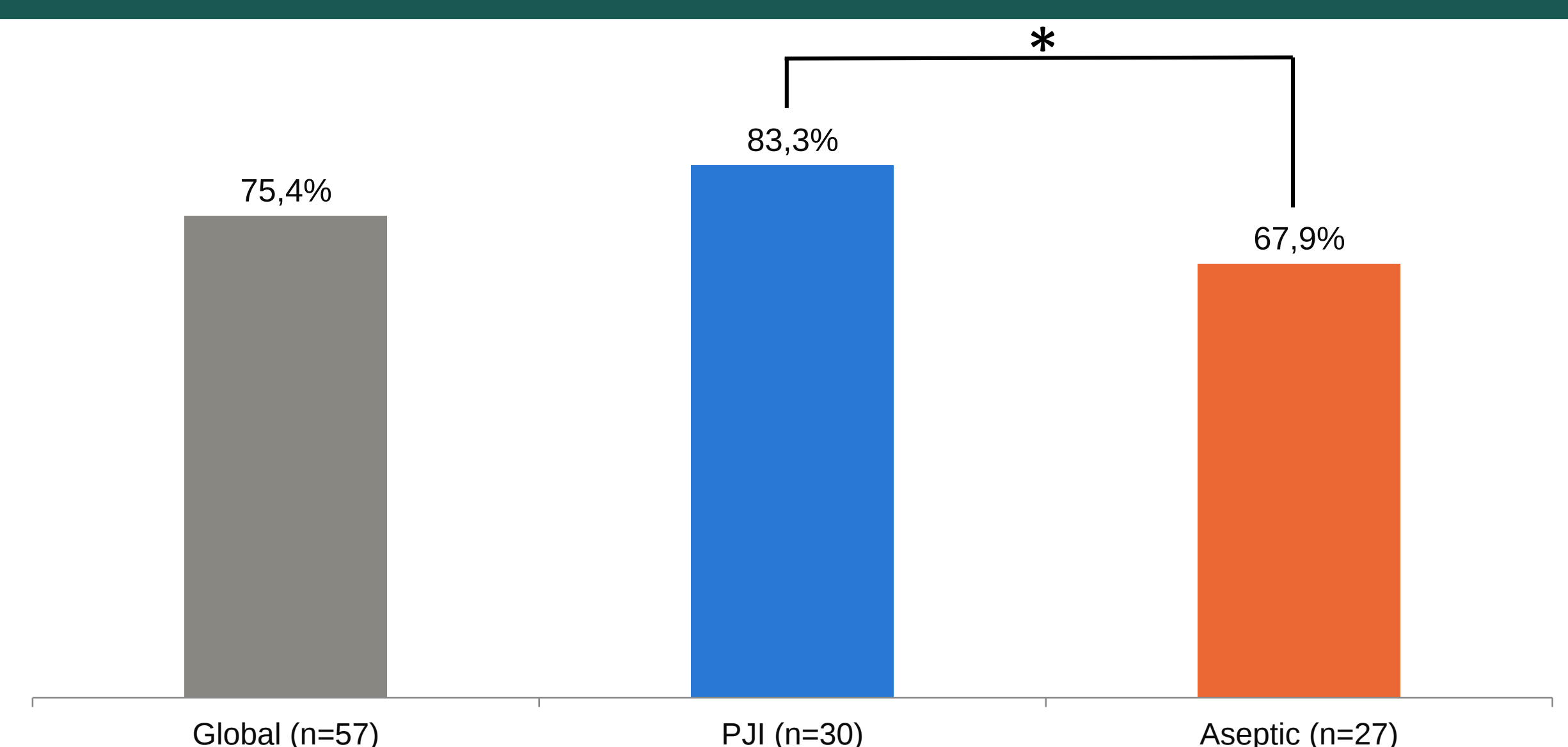
TABLE 1 — BASELINE CHARACTERISTICS

Variable	Global (n=57)	PJI (n=30)	Aseptic (n=27)	p	Test
Age at HA (years)	85.0 ± 6.9	84.2 ± 7.2	85.9 ± 6.5	0.18	Welch t
Female sex	36 (63%)	17 (57%)	19 (70%)	0.28	χ ²
BMI (kg/m ²)	23.2 ± 4.2	24.5 ± 4.6	21.9 ± 3.0	<0.01	Welch t
Pre-fracture Parker score	5.0 ± 2.7	4.3 ± 2.3	5.7 ± 2.8	0.02	Welch t
ASA score	2.72 ± 0.59	2.77 ± 0.57	2.67 ± 0.62	0.26	Welch t
Institutionalised patients	20 (35%)	13 (43%)	7 (26%)	0.17	χ ²
Anaemia	7 (12.3%)	5 (17%)	2 (7.4%)	0.29	χ ²
Cognitive impairment	14 (24.5%)	11 (37%)	3 (11%)	0.02	χ ²

TABLE 2 — POSTOPERATIVE OUTCOMES

Variable	Global (n=57)	PJI (n=30)	Aseptic (n=27)	p	Test
Mean follow-up (months)	25.7 ± 25.4	18 ± 12	35 ± 25	0.19	Welch t
Any surgical complication	10 (17.5%)	2 (6.7%)	8 (29.6%)	0.016	χ ²
Recurrent/new dislocation	7 (12.3%)	1 (3.3%)	6 (22%)	0.026	χ ²
Persistent/new infection	4 (7%)	1 (3.3%)	3 (11%)	0.23	χ ²
Reoperation after THA	4 (7%)	1 (3.3%)	3 (11%)	0.25	χ ²
Mortality at follow-up	43 (75.4%)	25 (83.3%)	18 (67.9%)	<0.001	χ ²
Time THA→death (months)	19 ± 19 (0–84)	16 ± 17 (0–66)	23 ± 22 (0–84)	0.14	Welch t

FIGURE 2 — MORTALITY AT LAST FOLLOW-UP



CONCLUSIONS

- Conversion of HA to THA was associated with **substantial morbidity**, including high rates of recurrent instability in aseptic cases despite the use of dual mobility systems.
- **Mortality exceeded 80% in patients converted for PJI**; higher BMI, reduced mobility, and cognitive impairment were risk factors for infection-related complications.
- These findings highlight the profound frailty of this population and the importance of multidisciplinary collaboration between orthopaedic surgeons, geriatricians, and infectious disease specialists to optimise perioperative management and patient selection.

Keywords: hip hemiarthroplasty; conversion arthroplasty; total hip arthroplasty; periprosthetic joint infection; femoral neck fracture; elderly patients.

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