Complications and mortality in geriatric patients with proximal femoral fractures.

A retrospective evaluation of 465 consecutive cases

hôpital fribourgeois
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Introduction

Patients over 65 years are more susceptible to proximal femoral fractures from low-energy trauma. Surgery within 48 hours improves mortality and recovery. Multidisciplinary care involving geriatricians and orthopedic surgeons enhances outcomes. HFR Fribourg introduced an orthogeriatric pathway in November 2024 to optimize treatment. This study aims to provide an overview of surgery timing, length of stay, complications, and mortality in patients aged 65 years and older with proximal femoral fracture, treated at our institution in the six years prior pathway introduction.

Methods

A retrospective analysis of 465 proximal femoral fractures (459 patients) resulting from low-energy trauma, surgically treated at HFR between 2018 and 2023, was carried out using electronic medical records. We define early surgery as operations performed within 48 hours, and delayed surgery as those performed after 48 hours. We performed a stepwise regression analysis including the variables ASA score, Admission weekday periods, Age, and Gender. The week was divided into three admission periods: early week (Sunday and Monday), midweek (Tuesday to Thursday), and late week (Friday and Saturday).

Results

The mean age at the time of surgery was 83.5 ± 7.5 years, 74% of the patients were female. The mean time to surgery was 37.4 ± 32.0 hours. A total of 347 (74.6%) patients underwent early surgery and 118 (25.4%) delayed surgery (2880 minutes).

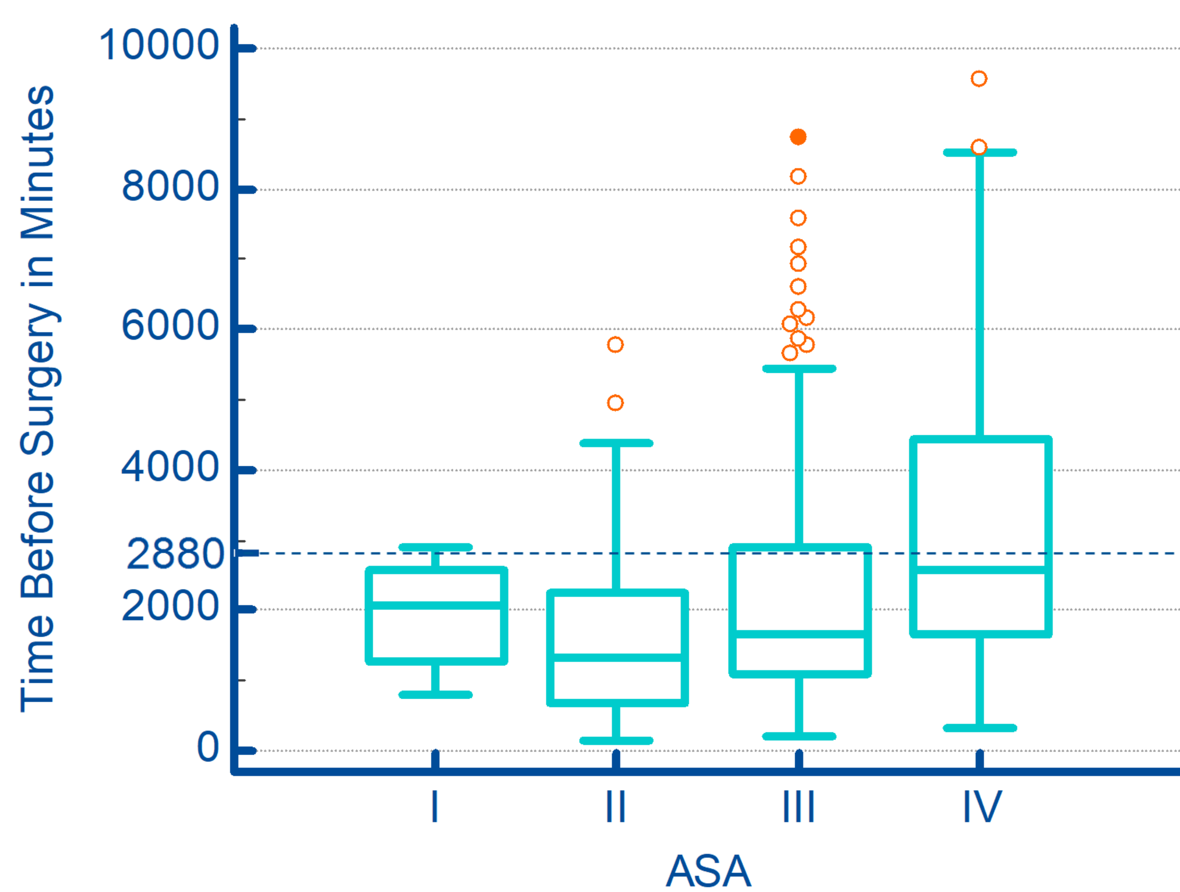


Figure 1.

Distribution of Time to Surgery (minutes) by ASA Classification

ASA scores 2 and 4 differed significantly compared to ASA 3 with early and delayed surgery (p = 0.001). Specifically, patients with ASA score 2 had a 2.3-fold higher likelihood of undergoing early surgery, whereas those with ASA score 4 were more than twice as likely to experience delayed surgery (**Table 1.**).

Table 1.

Variable	Odds Ratio	95% CI	p-Value
ASA 2	2.28	1.20 to 4.32	0.01
ASA 4	0.46	0.26 to 0.80	0.01
Early Week	1.65	1.01 to 2.70	0.05

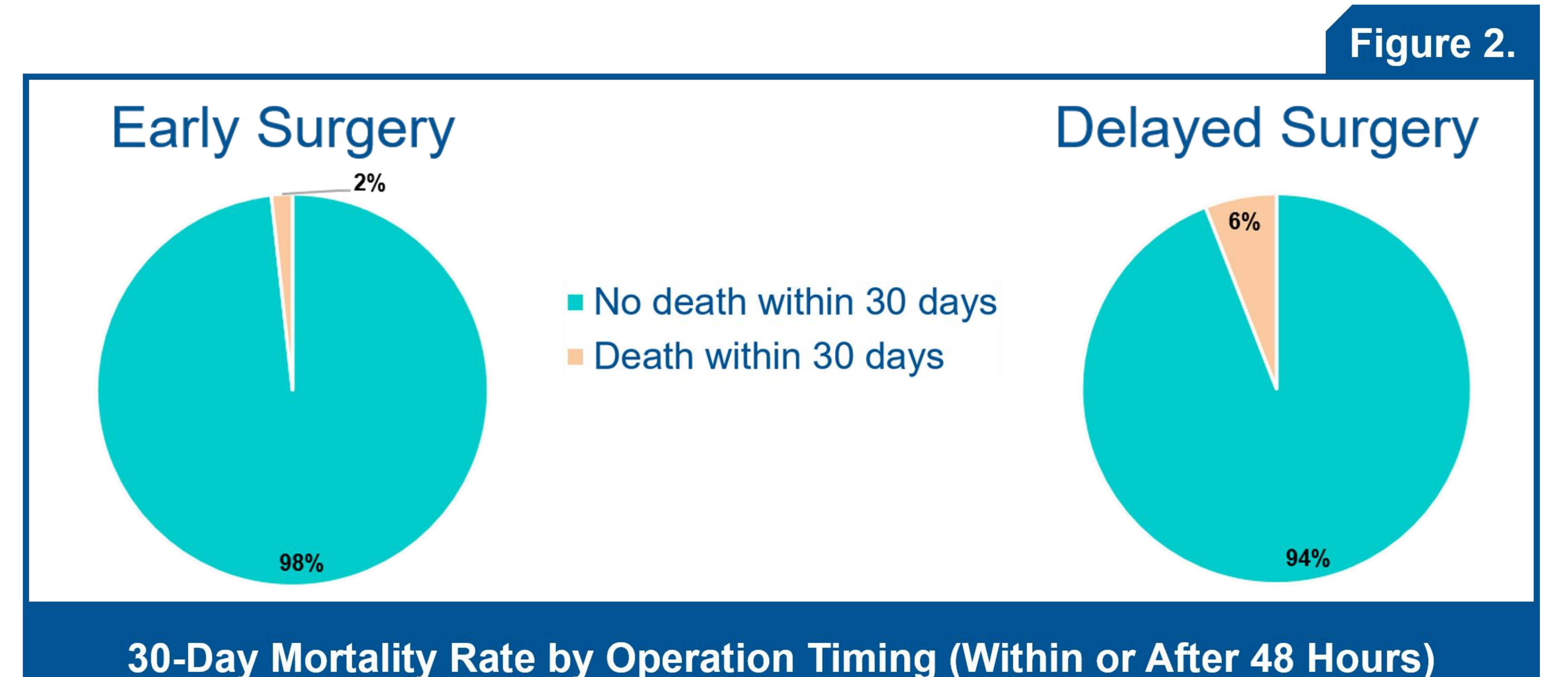
Stepwise regression with variables : ASA, Admission Weekday Periods

Patients admitted at “early week” had a 1.6-fold higher likelihood (95% CI 1.01–2.69) of receiving early surgery compared to patients admitted at “late week” on Friday or Saturday (Table 1.).

The variables Age, Gender, and ASA 1 did not reach statistical significance and were excluded from the model.

The 30-day mortality after early versus delayed surgery shows a statistically significant difference (p=0.017) (**Figure 2.**).

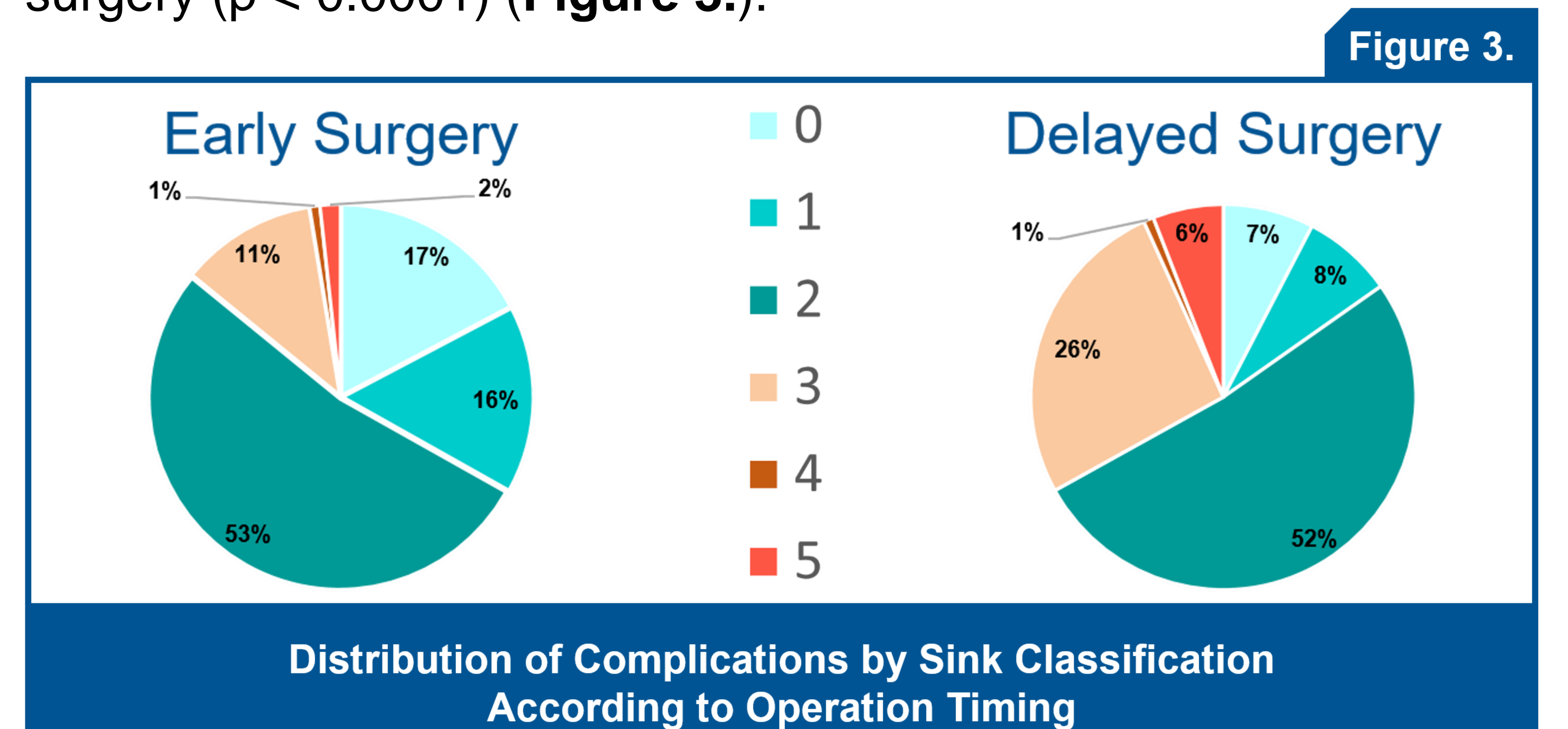
Figure 2.



30-Day Mortality Rate by Operation Timing (Within or After 48 Hours)

The complication rates, measured according to the Sink classification, differed significantly between early and delayed surgery (p < 0.0001) (**Figure 3.**).

Figure 3.



Distribution of Complications by Sink Classification According to Operation Timing

Conclusion

This study establishes a baseline for demographics, treatment timings, complications, and mortality in this patient group prior to the introduction of the orthogeriatric program. Early surgery was associated with significantly lower mortality and complications. An important highlight is the significant association between higher ASA score and delayed surgery. This suggest a paradigm shift, with particular attention to patients presenting higher ASA scores, for whom early surgery should also be prioritized. This allows us to compare outcomes after implementation in order to confirm improvements and identify further potential for optimization.

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