

Emofilia

PERIOPERATIVE MANAGEMENT OF MILD-TO-MODERATE HEMOPHILIA: A COMPARATIVE STUDY OF EXTENDED HALF-LIFE VERSUS STANDARD HALF-LIFE CONCENTRATES ON CLINICAL OUTCOMES AND FACTOR CONSUMPTION

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Background and Aims. In recent years, extended half-life concentrates (EHLs) have become an effective alternative to standard half-life concentrates (SHLs) in hemophilia, offering improved pharmacokinetics and reduced infusion frequency. These features make EHLs particularly attractive for perioperative management. While their efficacy and safety in surgery have been confirmed in severe or moderate-severe hemophilia, evidence remains scarce for mild-to-moderate hemophilia. The aim of this study was to confirm perioperative safety and hemostatic efficacy of EHLs and to evaluate the reduction of factor consumption and number of infusions of EHLs compared to SHLs in patients with mild-to--moderate hemophilia A (HA) or B (HB).

Methods. We retrospectively analyzed 191 patients with mild-to-moderate HA or HB and collected data from 27 EHL-s-managed surgeries performed at our center in 22 patients from 2018 to 2026. Fourteen major (52%) and 13 minor (48%) surgeries were performed. Twenty patients (91%) had mild hemophilia and 2 (9%) had moderate hemophilia. Two patients had undergone the same surgery once with SHLs and once with EHLs allowing an intra-patient comparison. We also compared our data with published literature for the same procedures (direct comparison of major surgeries was not possible due to the lack of comparable literature data). Preoperative pharmacokinetic (PK) studies were conducted before 16 procedures (59%) to guide dosing strategies. Mean trough level of 55% (24h) and 31% (72h) were maintained. In two cases of major surgery, the emergency nature of the procedure precluded pharmacokinetic analysis. Regarding patients with HA, 11 procedures were performed using turoctocog alfa pegol, 4 with rurioctocog alfa pegol, 1 with damoctocog alfa pegol. Among patients with HB, nonacog beta pegol was utilized in 6 cases, eftrenonacog alfa and albutrepenonacog alfa in 2 cases each.

Results. In both comparisons we observed a reduction in the number of infusions (Table 1a) and total factor consumption (Table 1a, Table 1b). All 27 surgeries were managed with a single preoperative infusion. Postoperative infusions were administered once daily, whereas the literature reports twice-daily infusions when using SHLs. The sole exception in our cohort was a patient with mild HA undergoing cardiac surgery, who required more frequent infusions within the first 24 hours post-surgery before early transition to a single daily infusion. No patients developed inhibitors; a single bleeding event was due to poor hemostasis.

Conclusions. EHLs appear safe and effective for surgery in mild-to-moderate hemophilia, offering clinical advantages over SHLs across all analyzed populations, particularly in HB. While not statistically significant due to the limited cohort, these findings demonstrate a clinical advantage, despite the absence of baseline factor levels for literature-based cases. For HA, further improvements are expected with the advent of newer molecules.

	Patient 1	Patient 2
Type of hemophilia	HB mild	HB moderate
% of basal factor	11%	2%
Type of surgery	Major	Major
N° of infusions with SHLs	5	15
Total factor consumption with SHLs	200 IU/Kg	925 IU/Kg
N° of infusions with EHLs	2	10
Total factor consumption with EHLs	67 IU/Kg	650 IU/Kg

1a

Type of surgery	Source	Patient	Peri-operative consumption	Bleeding treatment
Colonoscopies with biopsies	Literature with SHLs	Patient 1 - HA mild	142 IU/Kg	293 IU/Kg
		Patient 2 - HA mild	115 IU/Kg	
		Patient 3 - HB mild	283 IU/Kg	
		Patient 4 - HA mild	77 IU/Kg	
		Patient 5 - HA moderate	149 IU/Kg	32 IU/Kg
		Patient 6 - HA moderate	49 IU/Kg	393 IU/Kg
		Patient 7 - HB mild	270 IU/Kg	360 IU/Kg
	Local experience with EHLs	Patient 1 - HB mild	41 IU/Kg	
		Patient 2 - HA mild	45 IU/Kg	
		Patient 3 - HA mild	100 IU/Kg	
		Patient 4 - HA mild	66 IU/Kg	67 IU/Kg + 134 IU/Kg of SHLs + 2 blood transfusions
		Patient 5 - HA mild	34 IU/Kg	
Dental implant placement	Literature with SHLs	Patient 1 - HA moderate	100 IU/Kg + tranexamic acid	
	Local experience with EHLs	Patient 2 - HA mild	36 IU/Kg	

1b

Table 1: intra-patient comparison (1a) and literature comparison (1b).