Changes in Adherence After Initiating Treatment with Prolonged Half-life Clotting Factors for Hemophilia

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INTRODUCTION

- **Prophylactic therapy for hemophilia effectively prevents bleeds but may require frequent infusions**
- **Several studies suggest that adherence to prophylaxis is low in routine clinical practice and could be associated with poor outcomes[1-5]**
- **Prophylaxis with prolonged half-life recombinant factor VIII Fc fusion protein (rFVIIIFc) or factor IX Fc fusion protein (rFIXFc) has been shown in clinical trials to extend protection and thereby decrease the infusion frequency needed to stop or prevent bleeds in subjects with severe hemophilia A (HA) or B (HB), respectively[6-9]**

OBJECTIVE

- **To evaluate real-world changes in treatment adherence rates among individuals with HA or HB pre- and post-initiation of prolonged half-life therapy with Fc technology**

METHODS

- **A retrospective analysis of a United States health insurance claims database was conducted using Truven Health MarketScan® data from 2013 to 2015**
- **Males who had at least one pharmacy claim for a hemophilia drug, initiated rFVIIIFc or rFIXFc therapy, and had consistent factor product use were eligible for inclusion**
- **The index date was defined as the first fill date of rFVIIIFc or rFIXFc for individuals with HA or HB, respectively**
- **Individuals who used bypassing factors for inhibitors were excluded**
- **Pharmacy claims of hemophilia products up to 12 months pre-index date and all post-index date claims were included**
- **Any pharmacy claims with days of supply ≤ 1 week in one fill date suggesting episodic use were excluded**

- Adherence was assessed by medication possession ratio (MPR) and calculated for each patient as:

$$\frac{\text{(Total days of drug supplied)}}{\left[\text{Last presciption fill date}\right] - \left[\text{First prescription fill date}\right] + \left[\text{Days of drug supplied in last prescription fill}\right]}$$

- Paired t-tests were used to compare within-person mean MPR difference between pre-index and post-index periods among individuals with HA or HB
- Analyses were also conducted among subgroups of adults ≥18 years old and children <18 years old

RESULTS

Patient characteristics

- **Among HA patients (N=30), mean post-index follow-up was 6.4 months [standard deviation (SD): 4.3], and among HB patients (N=13), mean follow-up was 9.0 months (4.3) (Table 1)**

Table 1. Patient characteristics

Characteristic	Hemophilia A (N=30)	Hemophilia B (N=13)
Age, mean (SD)	22.6 (10.6)	25.3 (17.0)
Age categories		
0-9	2 (6.7%)	1 (7.7%)
10-17	5 (16.7%)	3 (23.1%)
18-34	20 (66.7%)	7 (53.8%)
35+	3 (10%)	2 (15.4%)
Health insurance plan type*		
HMO	5 (16.7%)	0 (0.0%)
POS	3 (10%)	1 (7.7%)
PPO	18 (60%)	9 (69.2%)
Other	3 (10%)	3 (23.1%)
Geographic region		
Northeast	6 (20.0%)	3 (23.1%)
North Central	12 (40.0%)	2 (15.4%)
South	11 (36.7%)	5 (38.5%)
West	1 (3.3%)	3 (23.1%)
Study follow-up		
Pre-index date, mean(SD)	10.3 (1.7)	10.2 (2.0)
Post-index date, mean(SD)	6.4 (4.3)	9.0 (4.3)

SD=standard deviation; HMO=Health maintenance organization; POS=Point-of-service; PPO=Preferred provider organization

N(%), unless otherwise specified

*One individual with hemophilia A with missing information

Treatment adherence rates

- **Mean MPR increased significantly for post-index rFVIIIFc compared with pre-index FVIII [82% (SD: 0.17, median: 86%) vs. 60% (0.26, 58%), $p<0.0001$; Figure 1]**
- **Mean MPR also increased significantly for post-index rFIXFc compared with pre-index FIX [85% (0.21, 91%) vs. 52% (0.27, 54%), $p=0.002$; Figure 1]**
- **MPR was generally higher among children versus adults (Figure 2)**
- **In HA, post-index versus pre-index MPR increased significantly for adults (n=23) [80% (SD: 0.16, median: 84%) vs. 56% (0.25, 55%), $p=0.0002$] and children (n=7) [87% (0.19, 97%) vs. 74% (0.25, 69%), $p=0.0477$] (Figure 2)**
- **In HB, post-index versus pre-index MPR also increased significantly in adults (n=9) [83% (SD: 0.24, median: 97%) vs. 44% (0.25, 40%), $p=0.0034$] and not significantly in children (n=4) [89% (0.13, 83%) vs. 69% (0.25, 66%), $p=0.3284$] (Figure 2)**

Figure 1. Mean MPR before and after initiation of prolonged half-life therapies by hemophilia type
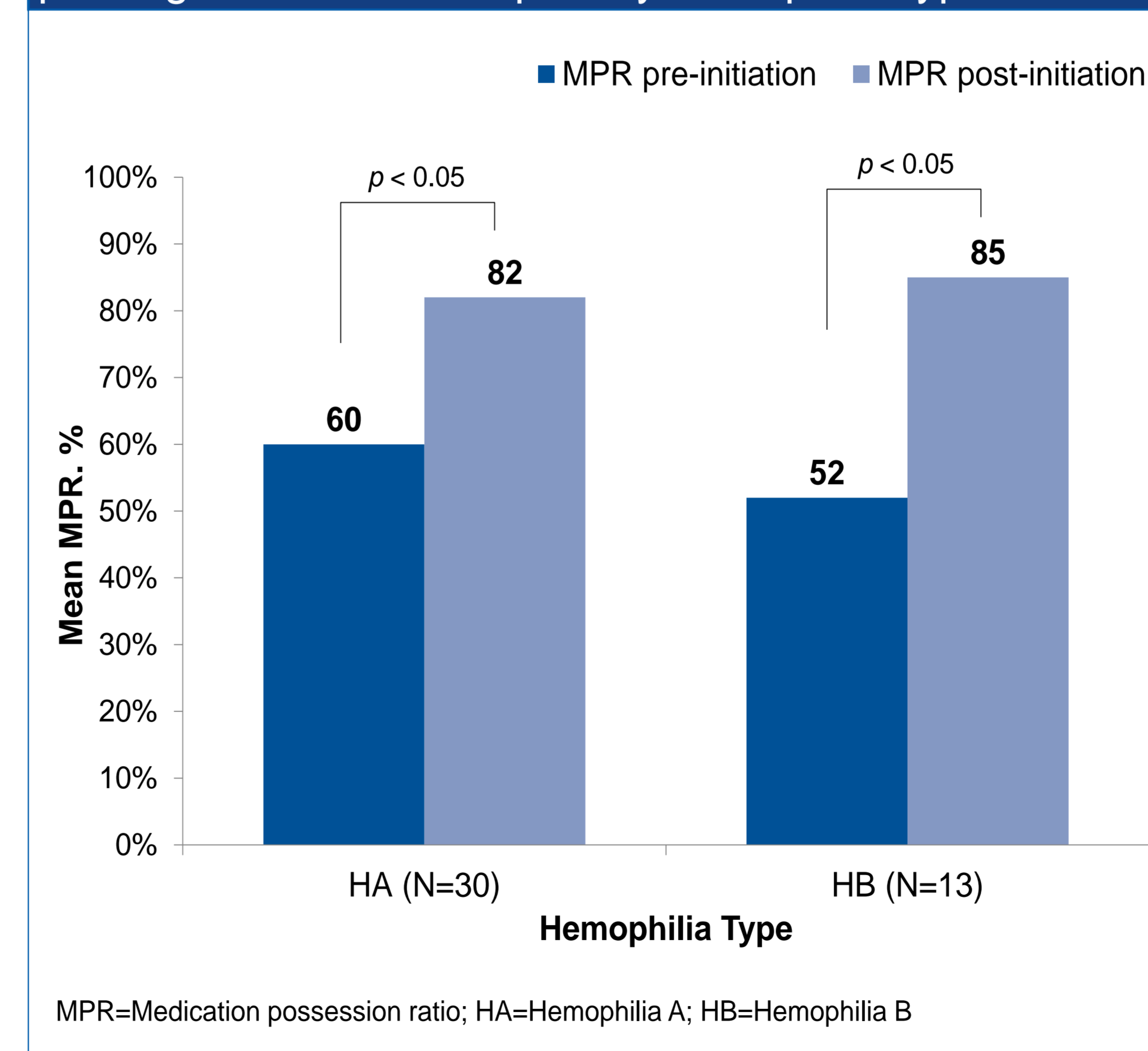
MPR=Medication possession ratio; HA=Hemophilia A; HB=Hemophilia B

Figure 2. Mean MPR before and after initiation of prolonged half-life therapies by age groups
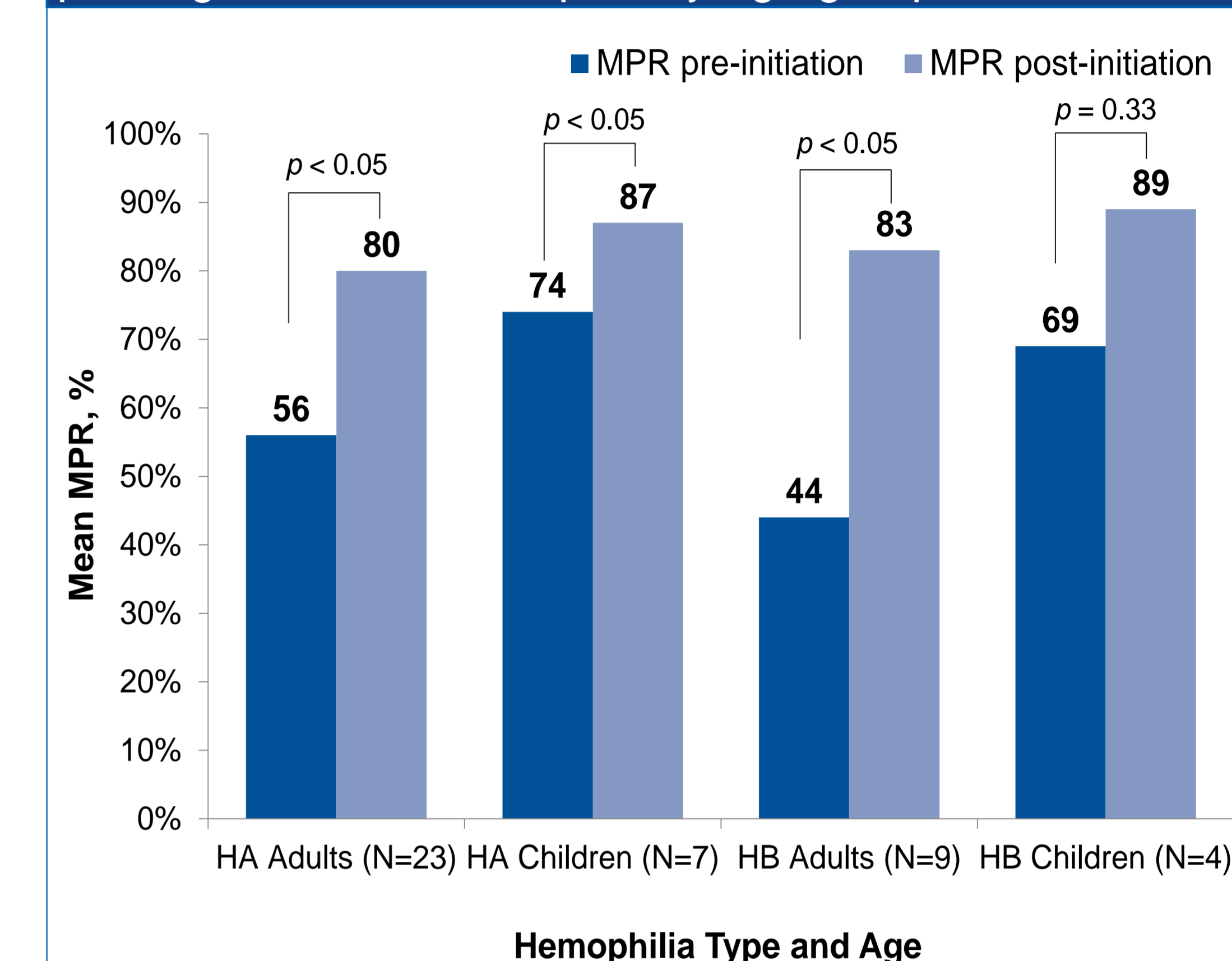
MPR=Medication possession ratio; HA=Hemophilia A; HB=Hemophilia B

CONCLUSIONS

- **This study of real-world data demonstrates significantly improved adherence rate following initiation of rFVIIIFc or rFIXFc compared with adherence to conventional factor therapies before initiation**
- **The observed improvement in adherence may be a result of the decreased infusion frequency and extended dosing intervals achievable with rFVIIIFc and rFIXFc and can lead to improved long-term outcomes for patients with hemophilia**

References

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Disclosures