PO Number: 612

Clinical outcomes in mild-moderate and severe patients with hemophilia B: results from a real-world, multi-national survey

Sheena Thakkar[1], Lisa Wilcox[1], Valeria Merla[1], Anna Kane[1], Jose Alvir[1], Surya Pemmaraju[1], Jennifer Mellor[2], Ella Morton[2], Jade Garratt Wheeldon[2], James Pike[2], Nathan Ball[2], Stevie Olsen[2]

[1]Pfizer Inc, New York, United States of America [2]Adelphi Real World, Bollington, United Kingdom

INTRODUCTION

- Hemophilia B is a heritable X-linked disorder characterized by recurrent and extended bleeding episodes resulting from a deficiency of factor IX.
- These bleeding episodes can cause joint damage, which can impair mobility and may ultimately require surgery.
- With newer therapeutic options, including gene therapy and non-factor therapies, soon to be available for hemophilia B, it is important to more fully characterize current real-world treatment outcomes and existing treatment gaps with factor replacement prophylaxis.

OBJECTIVE

- This study compared occurrence of bleeding episodes and resultant joint damage in those with mild/ moderate (mod) and severe hemophilia B in a real-world setting.

METHODS

- Data were drawn from the Adelphi Real World Hemophilia Disease Specific Programme (DSP)™, a cross-sectional survey with retrospective data collection of hemophilia-treating physicians in France, Germany, Italy, Spain, the United Kingdom, and the United States of America between February 2020 – May 2021.
- Hematologists and hematologist-oncologists completed patient record forms for their next consecutively consulting male patients with hemophilia B (PwHB), including demographics, bleeds, joint health, and hospitalizations.
- Patients were grouped by physician-reported baseline factor activity level: <1% factor were defined as severe, ≥1% were mild/ mod.
- Differences between groups were analyzed using Fisher's Exact test or t-test, for categorical and continuous variables, respectively.
- The survey was conducted according to relevant guidelines and legislation, and the methodology has been previously published and validated [1-4].

RESULTS

- Overall, 142 physicians provided data for 312 PwHB (mild/ mod: n=220; severe: n=92, **Table 1**).
- Mean (standard deviation; SD) age was 31.0 (17.8) years, 82% of PwHB were White, 35% of PwHB were working full-time, 30% were students and 12% were working part-time.
- With respect to inhibitor status, 85% of PwHB never developed inhibitors, 10% had inhibitors in the past but not currently, and 5% had current inhibitors.
- Overall, 72% of PwHB were treated in a haemophilia treatment centre (HTC), 18% in a non-HTC and 10% in both an HTC and non-HTC setting.
- 68% of patients were currently receiving treatment (mild/ mod: 57%; severe: 95%), with 60% treated prophylactically (mild/ mod: 39%; severe: 91%, **Table 1**).

Table 1: Patient demographics and clinical characteristics

	Base	Mild/ Moderate	Severe	p value
Patient demographics	**n= 312**	**n= 220**	**n= 92**	
Age, mean (SD)	31.0 (17.8)	32.6 (16.9)	27.2 (19.4)	0.0149
BMI, mean (SD)	23.7 (4.1)	24.0 (3.5)	23.1 (5.3)	0.0712
Ethnicity (White), n (%)	256 (82%)	183 (83%)	73 (79%)	0.4226
Inhibitor status, n (%)				0.0275
Never had inhibitors	266 (85%)	182 (83%)	84 (91%)	
Had inhibitors in the past, but not currently	31 (10%)	28 (13%)	3 (3%)	
Currently has inhibitors	15 (5%)	10 (5%)	5 (5%)	
Currently receiving treatment, n (%)	**212 (68%)**	**125 (57%)**	**87 (95%)**	<0.0001
Treated prophylactically, n (%)	128 (60%)	49 (39%)	79 (91%)	<0.0001
Treatment type, n (%)	**n= 212**	**n= 125**	**n= 87**	0.0014
Standard half-life therapy	115 (54%)	80 (64%)	35 (40%)	
Extended half-life therapy	81 (38%)	35 (28%)	46 (52%)	
Bypassing agents	6 (3%)	3 (2%)	3 (3%)	
Other	10 (5%)	7 (6%)	3 (3%)	

- In the 12 months prior to data collection, 57% of severe PwHB had experienced ≥1 bleed compared to 45% of mild/ mod PwHB (p=0.08).
- Of those who experienced ≥1 bleed, mean (SD) number of total bleeds experienced was 2.1 (2.6) (mild/ mod: 1.9 [2.0]; severe: 2.5 [4.0]; p=0.03) and the mean (SD) number of joint bleeds was 0.8 (2.1) (mild/ mod: 0.7 [0.8]; severe: 1.2 [3.5]; p=0.15).
- The most recent bleeding episode included joint bleed (mild/ mod: 30%; severe: 37%), nose bleed (mild/ mod: 26%; severe: 10%), and muscle bleeds (mild/ mod: 4%; severe: 18%, **Figure 1**).

Figure 1: Site of most recent bleeding episode

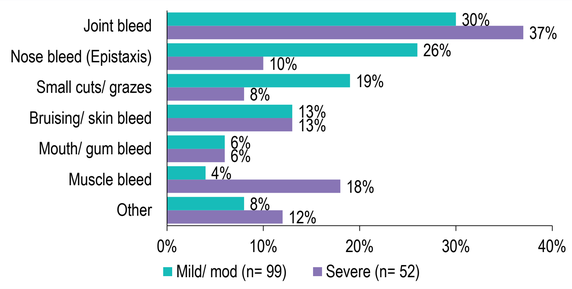
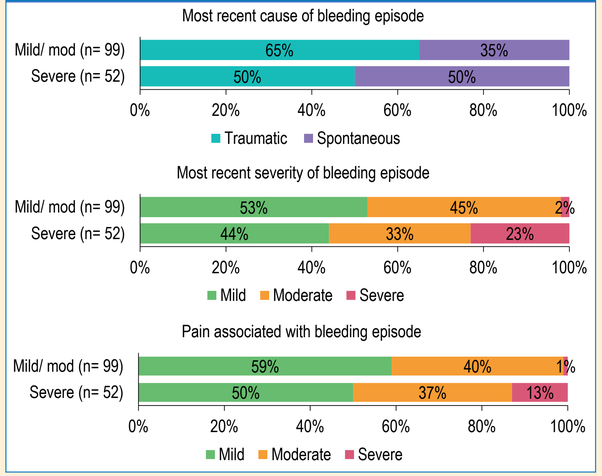
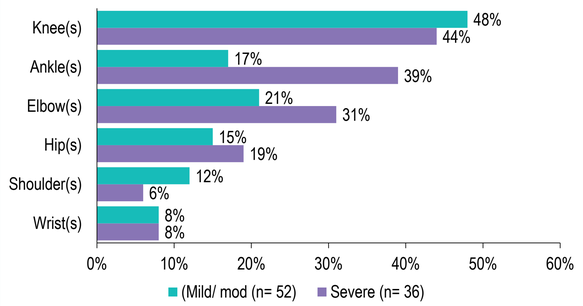


Figure 2: Cause and severity of most recent bleeding episode



- In mild/ mod PwHB, the most recent cause of bleeding episode was 65% traumatic and 35% spontaneous, compared to 50% traumatic and 50% spontaneous in severe PwHB (**Figure 2**).
- The most recent bleed was determined by physician to be severe in 2% of mild/ mod PwHB, compared to 23% in severe PwHB (p<0.01, **Figure 2**).
- Pain associated with the bleed was determined to be severe in 1% of cases for mild/ mod patients compared to 13% for severe patients (p<0.01, **Figure 2**).
- In the 12 months prior to data collection, 15% of PwHB experienced at least one hospitalization due to hemophilia (mild/ mod: 11%; severe: 24%; p<0.01).
- Reasons for hospitalisation include uncontrolled bleeding (mild/ mod: 60%; severe: 40%), infection (mild/ mod: 25%; severe: 5%) and blood clot (mild/ mod: 10%; severe: 15%).
- In the past 12 months, 5% of mild/ mod PwHB were hospitalised for surgery, compared with 30% of severe PwHB, with 6% of mild/ mod and 20% of severe PwHB having surgery due to haemophilia-related joint damage.
- Physicians reported 32% of PwHB had experienced joint problems due to hemophilia (mild/ mod: 26%; severe: 45%; p<0.01), 18% experienced synovitis in at least one joint (mild/ mod: 14%; severe: 28%; p<0.01) and 12% had been diagnosed with hemophilic arthropathy (mild/ mod: 6%; severe: 29%; p<0.01).
- The most frequently-reported target joints were knees (mild/ mod: 48%; severe: 44%), ankles (mild/ mod: 17%; severe: 39%), elbows (mild/ mod: 21%; severe: 31%) and hips (mild/ mod: 15%; severe: 19%, **Figure 3**).

Figure 3: Target joints due to hemophilia



CONCLUSIONS

- Despite high rates of factor prophylaxis prescription, patients with severe hemophilia B had problems with their joints and experienced multiple bleeds.
- Those bleeds were more commonly-reported as severe and associated with severe pain.
- In addition, a greater number of patients with severe hemophilia had a recent hospitalization compared to mild/ mod patients.
- These data suggest patients with severe hemophilia require improved treatment to control clinical outcomes and the pain associated with these.
- The introduction of innovative new therapeutic options, including gene therapy and non-factor therapies, may potentially address these needs.

ACKNOWLEDGEMENTS

- Data collection was undertaken by Adelphi Real World (Bollington, UK) as part of an independent survey, entitled the Adelphi Hemophilia Disease Specific Programme (DSP)™. All data are the intellectual property of Adelphi Real World. Pfizer Inc. subscribed to this survey and did not influence the original survey through either contribution to the design of questionnaires or data collection.
- Medical writing and editorial support was provided by Gary Sidgwick, PhD (Adelphi Real World, Bollington, UK), on behalf of Adelphi Real World and under the guidance of authors.

DISCLOSURES

- ST, LW, VM, AK, JA and SP are employees of Pfizer Inc., New York, United States of America.
- JM, EM, JGW, JP, NB and SO are employees of Adelphi Real World, Bollington, United Kingdom.

REFERENCES

1. Anderson et al. Curr Med Res Opin. 2008;24(11):3063-3072
2. Babineaux et al. BMJ Open. 2016;6(8):e010352
3. Higgins et al. Diabetes Metab Syndr Obes. 2016;9:371-380
4. Anderson et al. Curr Med Res Opin. 2023;39(12):1707-1715

Please scan this QR code with your smartphone app to view or obtain a copy of this poster. If you don't have a smartphone, access the poster via the internet at: https://scientificpubs.congressposter.com/p/6pa6ebdkh83spcrq

Presented at the Thrombosis & Hemostasis Summit of North America (THSNA 2024), 4th – 6th April 2024, Chicago, IL, United States.