Real-world data on patients with hemophilia A switching to either BAY 94-9027 or BAY 81-8973 from emicizumab using the ATHNdataset

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CONCLUSIONS

- **In this real-world study, 205 patients with hemophilia A were treated with BAY 94-9027 (damoctocog alfa pegol, Jivi®, Bayer) and 354 with BAY 81-8973 (octocog alfa, Kovaltry®, Bayer)**
- **Of these, 26 patients had received previous treatment with emicizumab and were switched to BAY 94-9027 (n=9) or BAY 81-8973 (n=17)**
- **Annualized bleeding rates (ABRs) were consistent after switching from emicizumab to BAY-9027 or BAY 81-8973**
- **Further studies are needed to confirm the impact of switching to BAY 94-9027 and BAY 81-8973 in real-world settings**
- **These data should be interpreted with caution owing to the limitations of real-world studies**

OBJECTIVES

- **To evaluate the real-world outcomes of switching from emicizumab to either BAY 94-9027 (damoctocog alfa pegol, Jivi®, Bayer) or BAY 81-8973 (octocog alfa, Kovaltry®, Bayer) in patients with hemophilia A**

INTRODUCTION

- Emicizumab (hemlibra) is a bispecific monoclonal antibody that mimics the activity of clotting Factor VIII (FVIII) by bridging FIXa and FX[1]
- BAY 94-9027 is a B-domain deleted recombinant FVIII (rFVIII), site-specifically PEGylated with a 60 kDa (dual-branched) polyethylene glycol to extend its half-life, first approved in the USA in August 2018 for use in previously treated patients aged ≥12 years with congenital hemophilia A[1]
- BAY 81-8973 is an unmodified, full-length, standard half-life rFVIII product approved in March 2016, indicated for prophylaxis and on-demand treatment of bleeding events in adults and children with congenital hemophilia A[2]
- There are few data on individuals who switched from emicizumab to FVIII products
- The ATHNdataset is a Health Insurance Portability and Accountability Act-compliant, de-identified database, sponsored by the American Thrombosis and Hemostasis Network[3] , containing data gathered by staff of ATHN-affiliated hemophilia treatment centers across the USA, including from patients with hemophilia A

METHODS

- The ATHNdataset was used to identify patients with hemophilia A who received either BAY 94-9027 or BAY 81-8973 as prophylaxis or on-demand treatment between January 1, 2010 and April 30, 2022
  - The dataset also reviews all prior treatments
- We analyzed baseline demographic data, treatment history, inhibitor status/history, and bleed rates from the ATHN data set

RESULTS

- Data from 17,109 patients with hemophilia A were included in the database, of whom 205 were receiving BAY 94-9027 and 354 were receiving BAY 81-8973

Patients receiving BAY 94-9027

- Nine patients (4.4%) had switched to BAY 94-9027 from emicizumab (mean time on emicizumab: 0.4 [range: 0–1.4] years) (**Table 1**)
  - Eight of the nine patients had severe disease, of whom three had been treated prophylactically, four had been treated on demand, and one had undergone immune tolerance induction
  - One patient had moderate disease and was treated prophylactically

Table 1: PATIENT DEMOGRAPHICS AND DISEASE HISTORY AT BASELINE

	Patients switching to BAY 94-9027 (n=9)	Patients switching to BAY 81-8973 with titer on previous treatment (n=17)
Age, years		
Mean (SD)	37.6 (15.3)	33.1 (15.4)
Median (range)	37.3 (16.6–63.3)	33.0 (14.1–63.3)
Male sex, n (%)	9 (100)	17 (100)
Disease severity, n (%)		
Mild	0	1 (5.9)
Moderate	1 (11.1)	5 (29.4)
Severe	8 (88.9)	11 (64.7)
Treatment type, n (%)[a]		
Prophylaxis	4 (44.4)	2 (11.8)
On demand	4 (44.4)	15 (88.2)
Immune tolerance induction	1 (11.1)	0
Duration of treatment, years[a]		
Mean (SD)	1.5 (0.7)	1.7 (1.1)

[a]While receiving BAY 94-9027 or BAY 81-8973
SD, standard deviation

- Before switching, the mean ABR for all nine patients while receiving emicizumab was 0.25
- After switching to BAY 94-9027, the mean ABR was 0 **(Table 2**)
  - Mean duration of BAY 94-9027 treatment was 1.5 (range: 0.11–2.33) years

Table 2: ABRs FOR INDIVIDUAL PATIENTS WHO HAD AN ABR >0 WHILE RECEIVING EMICIZUMAB BEFORE SWITCHING TO BAY 94-9027*

Patient	ABR during emicizumab therapy	ABR after switching
A	1.3	0
B	1.9	0

***All other patients had an ABR of 0 before and after switching to BAY 94-9027**
ABR, annualized bleeding rate

Patients receiving BAY 81-8973

- Overall, 17 patients (8.3%) had switched to BAY 81-8973 from emicizumab (**Table 1**)
  - The mean time on emicizumab was 0.5 (range: 0.03–2.1) years
  - Eleven of the 17 patients had severe disease, of whom 10 had been treated on demand and one had been treated prophylactically
  - Five patients had moderate disease (prophylaxis, n=1; on demand, n=4) and one had mild disease and had received on-demand treatment
- Before switching, the mean ABR while receiving emicizumab was 1.5 for all 17 patients
  - After switching to BAY 81-8973, the mean ABR was 0.17 (**Table 3**)
  - Mean duration of BAY 81-8973 treatment was 1.7 (range: 0–3.9) years

Table 3: ABRs FOR INDIVIDUAL PATIENTS WHO HAD AN ABR >0 WHILE RECEIVING EMICIZUMAB BEFORE SWITCHING TO BAY 81-8973*

Patient	ABR during emicizumab therapy	ABR after switching
C	2.9	0
D	1.3	0
E	4.2	1.3
F	5.5	0
G	0.6	0
H	4.2	0.6
I	4.6	0.6

***All other patients had an ABR of 0 before and after switching to BAY 81-8973, except one patient who had an ABR of 0 on emicizumab and 0.28 on BAY 81-8973**
ABR, annualized bleeding rate

Limitations

- The real-world data in the ATHNdataset relied on data captured during ATHN-affiliated hemophilia treatment center reviews and patients sharing bleed events at those reviews
- Due to the potentially incomplete nature of such datasets, results from real-world studies could be subject to recall bias and hence might have an influence on the observed low ABRs in this study
- Reasons for switching from emicizumab were not captured in the dataset
- These limitations should be taken into consideration while interpreting the effectiveness data presented

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