Single center clinical and pharmacokinetic experience with long-acting recombinant factor VIII (rFVIIIFx) and IX (rFIXFc)

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Introduction and Objectives:

With the FDA approval of long-acting recombinant factor VIII (rFVIIIFc, Eloctate) and IX (rFIXFc, Alprolix) in 2014, patients with Hemophilia A and B, respectively, were provided a wider range of options for the prevention of bleeding episodes.

Because these are still relatively new medications to treat two relatively rare diseases, clinical experience is limited.

As a comprehensive Hemophilia Treatment Center, we aim to describe our experience with these newly approved medications.

Materials and Methods:

While initiating treatment with rFVIIIFc or rFIXFc, the respective factor activity levels were monitored.

Samples were drawn at baseline and then at intervals of 1 hour, 24 hours, 48 hours, and trough (for rFVIIIFc), and baseline, 1 hour, 24 hours, 48 hours, 96 hours, and trough (for rFIXFc).

If available, the patients' bleeding logs were reviewed both before initiation of long-acting factor replacement, as well as while on therapy.

However, no adjustments to dose and/or frequency of long acting factor replacement was made based on the noted individual pharmacokinetics.

Patient 1/FVIII

Date	Time	Time Elapsed	Factor VIII Activity
7/22/14	10:44 AM	0	6
7/22/14	10:56 AM		
7/22/14	11:56 AM	1	98
7/23/14	10:19 AM	24	30
7/24/14	9:39 AM	47	18
7/25/14	1:30 PM	70	10

Patient 2/FIX

Date	Time	Time Elapsed	Factor IX Activity
6/17/14	1:34 PM	0	2
6/17/14	2:28 PM		
6/17/14	3:28 PM	1	26
6/19/14	12:58 PM	47	12
6/23/14	12:50 PM	119	7

Patient 3/FVIII

Date	Time	Time Elapsed	Factor VIII Activity
1/12/15	9:15 AM	0	0.4
1/12/15	9:15 AM		
1/12/15	10:15 AM	1	137
1/13/15	9:00 AM	24	29
1/14/15	9:15 AM	48	8
1/15/15	5:07 PM	83	2

Patient 4/FVIII

Date	Time	Time Elapsed	Factor VIII Activity
8/11/14	9:00 AM	0	2
8/11/14	9:00 AM		
8/11/14	10:00 AM	1	135
8/12/14	9:00 AM	24	31
8/13/14	8:55 AM	48	8
8/14/14	3:49 PM	79	2

Patient 5/FVIII

Date	Time	Time Elapsed	Factor VIII Activity
3/23/15	9:15 AM	0	0.4
3/23/15	9:19 AM		
3/23/15	10:19 AM	1	193
3/24/15	10:07 AM	25	47
3/25/15	10:11 AM	49	21
3/26/15	4:53 PM	80	7

Results:

5 patients with either Hemophilia A (4) or B (1) were started on therapy with rFVIIIFc or rFIXFc, respectively, at our institution.

Of these 5 patients, 3 (all Hemophilia A) remain on their long-acting factor replacement.

One Hemophilia A patient felt that he had begun to experience a higher bleed rate than when he was on his standard acting rFVIII prophylaxis.

The only Hemophilia B patient on rFIXFc, too, felt that he was experiencing more bleeds with his therapy.

Both these patients switched back to their respective original standard acting recombinant factor products.

Conclusions:

In our experience with the use of rFVIIIFc and rFIXFc, appropriate factor recovery was obtained. Additionally, 3 of 5 patients reported less clinically significant bleeding episodes while on long-acting factor replacement, compared to their previous treatment regimens.

However, two patients discontinued their treatment due to concerns about inadequate protection with long acting factor replacement.

This study suggests that the level of factor (pharmacokinetics) appears to not necessarily reflect pharmacodynamics

In general, rFVIIIFc and rFIXFc have been shown to be effective in bleeding prophylaxis in our patients with Hemophilia A and B.