Patient satisfaction with the BETACONNECT™ autoinjector for interferon beta-1b

AUTHORS

Tjalf Ziemssen,[1] Lauren Sylvester,[2] Mark Rametta,[2] Ivonne Weller,[3] Julika Vogelreuter,[3] Anna Saake,[3] Thomas Schreiner,[3] Nicolas Petroff,[4] Amy Perrin Ross[5]

[1]Center for Clinical Neurosciences, Department of Neurology, University Hospital Carl Gustav Carus at the Technical University of Dresden, Dresden, Germany
[2]Bayer HealthCare Pharmaceuticals, Whippany, NJ
[3]Bayer Vital GmbH, Leverkusen, Germany
[4]Vitartis Medizin-Service GmbH, Göttingen, Germany
[5]Loyola University Chicago, Maywood, IL

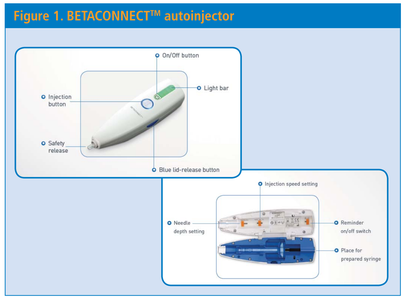
Introduction

- Treatment of multiple sclerosis (MS) requires long-term use of disease–modifying therapies (DMTs) for patients to manage their disease[1]
  - Many of the currently-approved DMTs require patients to perform regular self-injections, which can be associated with injection-site reactions or pain
  - Interferon beta-1b is an injectable DMT with a favorable long-term safety and efficacy profile for patients with MS[2-4]
- Use of an autoinjector may reduce the occurrence or severity of some of these adverse events and increase patient satisfaction and overall quality of life[5,6]
  - Adherence with treatment may also be improved when patients use autoinjectors[7]
- BETACONNECT™ is a new electronic autoinjector for interferon beta-1b that can automatically collect data such as injection date and time, injection depth, injection speed, and injection volume as patients perform injections (**Figure 1**)
  - BETACONNECT™ has visual and auditory indicators of battery status, safety release, and injection completion, as well as visual and audible injection reminders and adjustable injection speed and depth
  - The device can also transfer the collected data to an optional mobile phone application/computer program and a navigator application to enhance communication between patients and health care professionals and to help patients maintain adherence with therapy

Objective

- To assess satisfaction with BETACONNECT™ among patients using the autoinjector to administer interferon beta-1b

Figure 1. BETACONNECT™ autoinjector



Methods

- Two surveys were conducted in Germany to evaluate satisfaction among patients on interferon beta-1b (Betaferon®) using BETACONNECT™ (**Table 1**):
  - **Survey 1** was conducted to evaluate overall satisfaction with BETACONNECT™ and the importance of its features
  - Survey 2 was conducted to further validate the satisfaction levels observed in **Survey 1** and gain a deeper understanding of the impact of BETACONNECT™ on the patient's injection experience

Table 1: Design of the 2 surveys

Survey 1	Survey 2
Recruitment	
• Patients in Germany using BETACONNECT™ to administer interferon beta-1b were sent a questionnaire via mail • All patients gave previous written consent to be contacted	• Patients in Germany using BETACONNECT™ were invited to participate through invitation cards distributed by BETAPLUS® Nurses • Additionally, patients who signed prior written consent to be contacted were sent invitations by mail
• Recruitment approaches identified unique respondents for **Survey 1** and Survey 2 to avoid overlap in responses	
Major inclusion criteria	
• Participation in the BETAPLUS® program and use of the BETACONNECT™ device	• Use of BETACONNECT™ for ≥2 weeks, use of interferon beta-1b for ≥6 months, and performance of self-injections the majority of the time
Survey and data collection	
• Data was collected from a structured paper survey	• Data was collected from a structured online survey
Study assessments	
• 13-question survey – Overall assessment of BETACONNECT™, likelihood to recommend it, and helpfulness of the device was gauged on a 6-point scale from 1 (most positive) to 6 (most negative) – Importance of BETACONNECT™ features gauged on a 4-point scale from 1 (very important) to 4 (unimportant)	• 15-minute survey – Questions on intuitiveness, ease of use, and impact on the patient experience gauged on a 6-point scale ranging from Strongly Disagree to Strongly Agree – An open-ended question on reasons for satisfaction with BETACONNECT™ was included

Results

Respondents

- 1,365 respondents completed **Survey 1**, and 118 respondents completed Survey 2 (**Table 2**)

Table 2. Demographic and past injection experience of patients with MS participating in each survey

		Survey 1 (n=1,365)	Survey 2 (n=118)
Female, %		69	72
Age, %	<19 years	2	0
	20-29 years	7	7
	30-39 years	18	18
	40-49 years	30	37
	50-59 years	32	29
	≥60 years	9	9
	No answer	3	0
Previous injection method(s), %*	BETACOMFORT®	59	56
	BETAJECT® Comfort	23	39
	BETAJECT® Lite	3	14
	Manual, without autoinjector	4	4
	No answer	11	3
Length of time using BETACONNECT™, %	<1 month	11	31
	>1 month	86	69
	No answer	3	0

*Survey 1 captured only the patient's injection method prior to using BETACONNECT™, while Survey 2 recorded any previous injection method the patient had used (multiple selections were allowed).

Results (cont)

Overall Impressions of BETACONNECT™

- Overall impressions of BETACONNECT™ in **Survey 1** (**Figure 2**) and Survey 2 (**Figure 3**) were positive
- The majority of respondents preferred BETACONNECT™ over their previous autoinjector, felt it was easy to use, and were confident when performing an injection with it
- Patients were very likely to recommend BETACONNECT™ to a friend

Figure 2. Overall impressions of the BETACONNECT™ autoinjector in Survey 1

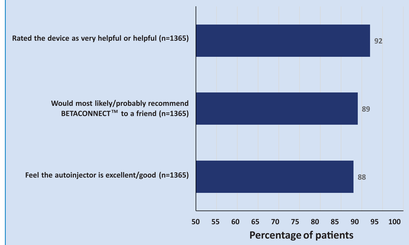
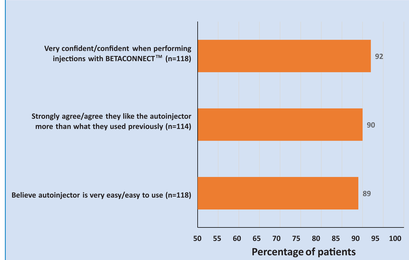


Figure 3. Overall impressions of the BETACONNECT™ autoinjector in Survey 2

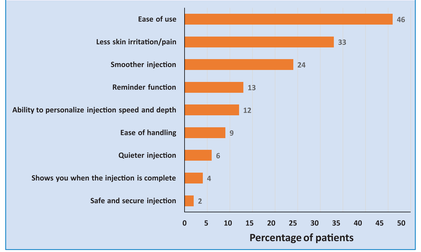


Survey 1 was supported by Bayer Vital GmbH, Leverkusen, Germany. Survey 2 was supported by Bayer HealthCare Pharmaceuticals, Inc, Whippany, NJ, United States.
Presented at the Annual Meeting of the Consortium of Multiple Sclerosis Centers; May 27-30, 2015; Indianapolis, Indiana, United States.

Reasons for Satisfaction with BETACONNECT™

- Unaided, patients in Survey 2 said the primary drivers for satisfaction with BETACONNECT™ were its ease of use, reduction of irritation and pain at the injection site, and smoother injections (**Figure 4**)
- Some patients also appreciated the reminder function, ability to personalize injection speed and depth, ease of handling, and quieter injections

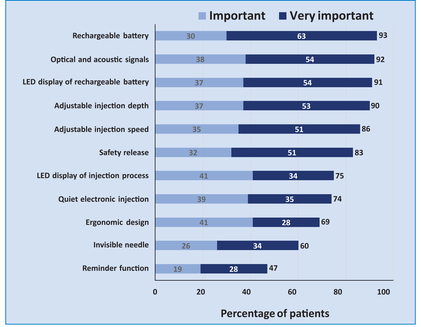
Figure 4. Primary reasons for satisfaction with BETACONNECT™ (unaided responses to an open-ended question from Survey 2, n=85)



Assessment of Features

- Majority of features were rated as either "very important" or "important" by most respondents in **Survey 1** (**Figure 5**)
  - In particular, patients considered the adjustable injection depth and speed, safety release, optical and acoustic signals, and rechargeable battery to be among the most important

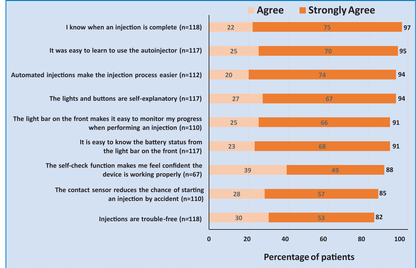
Figure 5. Importance of features from Survey 1 (n=1365)



Intuitiveness and Ease of Use

- Most patients in Survey 2 agreed BETACONNECT™ was easy to learn to use and felt the lights and buttons were self-explanatory (**Figure 6**)
- The majority agreed it was easy to know when an injection was completed and that the safety release reduced the chance of starting an injection by accident

Figure 6. Intuitiveness and ease of use of the autoinjector (Survey 2)

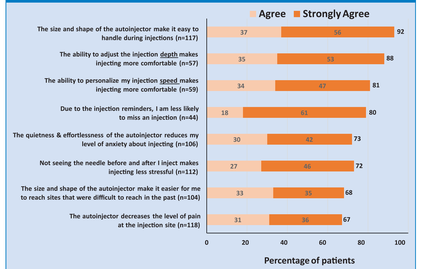


Participants who answered "don't know" or did not answer were excluded from the tally for that question.

Impact on the Patient Experience

- Participants from Survey 2 largely agreed BETACONNECT™ had a favorable impact on their injection experience including comfort of injections, ease of handling, the ability to reach injection sites, and reduced anxiety/pain (**Figure 7**)
- Most patients using the reminder function said they were less likely to miss an injection

Figure 7. Impact of BETACONNECT™ on the patient experience (Survey 2)



Participants who answered "don't know" or did not answer were excluded from the tally for that question.

Conclusions

- The results from the two complementary surveys confirm the preference for BETACONNECT™ over the previous device and suggest BETACONNECT™ may help increase satisfaction with treatment among patients on interferon beta-1b therapy
  - Overall patient satisfaction with the BETACONNECT™ autoinjector was high, driven by its ease of use, reduction of irritation and pain at the injection site, and smoother injections
  - Patients believed the new features of the autoinjector were important and stated that the lights and buttons helped guide the injection process
  - Participants largely agreed BETACONNECT™ improved the injection experience, including the comfort of injections, ease of handling, the ability to reach injection sites, and reduced anxiety/pain
- Most patients using the reminder function stated they were less likely to miss an injection, suggesting the autoinjector may increase adherence of patients on interferon beta-1b therapy
- Future publications will describe the impact of the autoinjector's unique communication features on adherence and information sharing between patients and health care professionals

References

1. Compston A, Coles A. Multiple sclerosis. *Lancet.* 2008;372(9648):1502-1517.
2. Ebers GC, Traboulsee A, Li D, et al. Analysis of clinical outcomes according to original treatment groups 16 years after the pivotal IFNB-1b trial. *J Neurol Neurosurg Psychiatry.* 2010;81(8):907-912.
3. Edan G, Kappos L, Montalban X, et al. Long-term impact of interferon beta-1b in patients with CIS: 8-year follow-up of BENEFIT. *J Neurol Neurosurg Psychiatry.* 2013;doi:10.1136/jnnp-2013-306222.
4. Reder AT, Oger JF, Kappos L, O'Connor P, Rametta M. Short-term and long-term safety and tolerability of interferon beta-1b in multiple sclerosis. *Mult Scler Relat Disorders.* 2013;3(3):294-302.
5. Brochet B, Lemaire G, Beddiaf A. Reduction of injection site reactions in multiple sclerosis (MS) patients newly started on interferon beta 1b therapy with two different devices. *Rev Neurol (Paris).* 2006;162(6-7):735-740.
6. Pozzilli C, Schweikert B, Ecari U, Oentrich W, Bugge JP. Quality of life and depression in multiple sclerosis patients: longitudinal results of the βPlus study. *J Neurol.* 2012;259(11):2319-2328.
7. Pozzilli C, Schweikert B, Ecari U, Oentrich W. Supportive strategies to improve adherence to IFN beta-1b in multiple sclerosis--results of the βPlus observational cohort study. *J Neurol Sci.* 2011;307(1-2):120-126.

Disclosures

- TZ is on the scientific advisory board for Bayer HealthCare, Biogen Idec, Novartis, Merck-Serono, Teva, Genzyme, and Synthon; has received speaker honorarium from Bayer HealthCare, Biogen Idec, Genzyme, MSD, GSK, Novartis, Teva, Sanofi, and Almirall; and has received research support from Bayer HealthCare, Biogen Idec, Genzyme, Novartis, Teva, and Sanofi.
- MR is a salaried employee of Bayer HealthCare Pharmaceuticals.
- LS is a salaried employee of Bayer HealthCare Pharmaceuticals.
- IW is a salaried employee of Bayer Vital GmbH.
- JV is a salaried employee of Bayer Vital GmbH.
- AS is a student apprentice of Bayer Vital GmbH.
- TS is a salaried employee of Bayer Vital GmbH.
- NP is a salaried employee of Vitartis Medizin-Service GmbH.
- APR has served as a consultant/paid advisory board member for Acorda Therapeutics; EMD Serono, Inc; Genzyme Corporation; Novartis; and Teva. She also reports receiving lecture fees from Acorda Therapeutics; Biogen Idec; EMD Serono, Inc; Novartis; Pfizer, Inc; and Teva.