Patient Satisfaction, Safety and Time per Visit: A Comparison of Webcam-Based and Face-to-Face Nurse Visits With Multiple Sclerosis Patients

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ABSTRACT

Objective: To determine whether patient satisfaction, adverse event reporting and the time per visit differs for multiple sclerosis (MS) patients receiving webcam-based versus personal (face-to-face) nurse visits.

Background: Brazil has a population density that is about 10-times lower than most European countries. Consequently, nurses who train MS patients on how to inject medication spend more time travelling to than training patients. A more time efficient way to reach some patients may be via webcam. A total of 52% of Brazilian patients with MS who use interferon beta-1b (IFNB-1b; Betaferon®) access the Internet compared with 35% in the overall Brazilian population. Higher Internet use by MS patients versus the overall population has also been documented by a study within the US population. Since 2009, Bayer Schering Pharma has offered webcam-based visits to Brazilian patients who use IFNB-1b.

Methods: A total of 69 IFNB-1b-treated patients received either a webcam (n=35) or personal visit (n=34) with an MS specialist nurse and answered a questionnaire evaluating their satisfaction with the visit and their preference for webcam versus personal visits for future appointments. Response time between solicitation and realization of the visit was analysed. The incidence of flu-like symptoms and injection site reactions in the 3 months following the visit were also compared. Age, gender and regional distribution were analysed for both groups.

Results: Patient satisfaction with the visit was similar in both groups. Average time between solicitation and realisation of the visit was nearly five-times shorter (3.4 days) for the webcam group than the personal visit group (16.7 days). As webcam visits do not require nurses to travel, a nurse can attend to up to eight patients per 8-hour work day via webcam versus an average of 1–2 face-to-face visits. The percentage of patients for which injection-site reactions or flu-like symptoms were reported in the 3 months following the visit was similar between webcam (12%) and personal visit groups (14%). In the webcam group, 80% of patients would accept both types of contact for future visits versus 38% in the personal visit group. The greater acceptance of webcam technology among patients in the webcam group may result from familiarity and comfort with this method of communication.

Conclusions: This is the first time a webcam-based remote care service has been offered to an MS patient population. The results of this study confirm use of webcam technology as a viable channel for providing remote nurse support to patients with MS in large territory countries.

Introduction

- The management and support of individuals with multiple sclerosis (MS) is provided by various healthcare professionals, such as general practitioners, internists, neurologists, physiotherapists and nurses.[1]
- For MS patients to maximise their potential for improved clinical and magnetic resonance imaging (MRI) outcomes, it is necessary that they initiate and adhere to prescribed treatment regimens.
  - The 3-year risk of relapse was found to be significantly lower in patients who were adherent to treatment than in those who were non-compliant.[2]
  - In addition, increasingly adherent patients have been shown to experience correspondingly lower relapse rates.[2]
- Yet, adherence rates for MS range from 27–41%,[2] with 25–40% of patients discontinuing disease modifying treatment within the first 5 years of treatment initiation.[3]
- As good injection techniques can reduce the frequency of adverse events—thus improving medication adherence—it is imperative that the clinical MS team provide proper instruction.[4]
- Nurse specialists are well positioned to teach patients about self-administration and to provide motivation for long-term treatment adherence,[4] and research has demonstrated the positive impact of MS specialist nurse programs on MS-related healthcare[5] and medication adherence.[6]
  - A 15-month study of 1268 Italian patients with MS recorded higher adherence rates among individuals receiving nurse support than those without it (81% versus 56%) (data on file). A similar trend was observed in patients in the United States (BETA Nurse support versus no nurse support: 88% versus 63%)[7]
- However, the availability of MS specialist nurses varies geographically,[1] in part due to logistical limitations (e.g. travel distance) that diminish productivity and limit patient access. Such constraints are especially problematic in sparsely populated regions.
- For example, Brazil has a population density that is approximately 10-times lower than most European countries.[8-10] Consequently, nurses who train MS patients on how to inject medication spend more time travelling than training patients.
- A more time efficient means to reach some patients may be a webcam-based visit.
- A higher proportion (52%) of Brazilian MS patients using interferon beta-1b (IFNb-1b; Betaferon®) access the Internet than the overall Brazilian population (35%).[11, 12]
  - Higher Internet use among patients with MS versus the overall population has also been documented by a study of the US population.[13]
- Since 2009, Bayer Schering Pharma has offered webcam visits to Brazilian patients who use IFNb-1b as part of the BETAPLUS® program.[14]
- The aim of this study was to determine whether patient satisfaction, adverse event reporting and the time per visit differs for MS patients receiving webcam-based versus personal nurse visits.

Methods

- From July 2009 to December 2009, a sample was drawn from a database of IFNB-1b users in Brazil participating in the BETAPLUS® program, an industry-sponsored support program for IFNB-1b-treated patients that provides a range of resources including injection training and regular follow-up by a BETA Nurse. Consenting patients received a webcam-based visit (n=35). Control patients (n=34) received a personal visit from a MS specialist nurse (BETA Nurse) and were randomly selected from the BETAPLUS® database.
- Brazilian patients participating in BETAPLUS® can access the program's Portuguese-language web site ("Esclarecimento Multiplo") that also serves as a portal for webcam conferencing with healthcare professionals, including BETA Nurses.
- Outcomes data were captured via patient survey (questionnaire) in the 3–4 months following study visit.
  - The survey consisted of closed-ended questions with either dichotomous (yes/no) or multiple-choice responses.
- In addition to recording demographic and treatment-specific data, the questionnaire captured the following:
  - Degree of satisfaction with the visit in general
  - Degree of satisfaction with the times (time slots or scheduling options) available for visit
  - Number of days from the patient's contact request until visit
  - Preference for next visit (i.e. webcam versus personal)
  - Incidence of flu-like symptoms and injection site reactions (defined according to MedDRA terminology) within 3 months of visit
- Descriptive statistics were calculated for both groups, but statistical analyses were not performed due to the small sample size.

Results

- Table 1 presents the demographic characteristics of the study population stratified according to visit type (i.e. webcam versus personal visit with a BETA Nurse).
  - Patients were mostly female, with the personal visit group having a higher proportion of females (76% versus 60%).
  - The population was between the ages of 15 and 45, with the majority of patients ≤35 years of age.
  - Patients were generally from more urban settings in the Southeast and Central-West regions of Brazil with approximately 80% residing in the states of Sao Paulo, Rio de Janeiro, or the Federal District.
- Approximately half of respondents to the survey identified their MS diagnosis. Of these, relapsing-remitting MS (RRMS) was the predominant phenotype in both groups.
  - The distribution frequency for the time since diagnosis in the webcam visit group was bimodal: 37% were diagnosed ≤2 years ago, while 26% were diagnosed >5 years ago. In the personal visit group, 50% of patients were diagnosed with MS ≥3 years ago.
- Among patients providing an answer, the majority were using the Betaject® system for IFNB-1b delivery (webcam versus personal: 86% versus 70%) and had been in the BETAPLUS® program for <5 years.

Table 1. Patient demographics

	Webcam visit group (n=35)	Webcam visit group (n=34)
Gender		
Male	40%	24%
Female	60%	76%
Age		
15-25 years	31%	35%
26-35 years	29%	30%
36-45 years	29%	26%
>46 years	11%	9%
States/region*		
Sao Paulo	63%	70%
Rio de Janeiro	8%	6%
Federal District	8%	12%
Type of MS		
CIS		
RRMS	51%	50%
SPMS	6%	0%
No answer	43%	50%
Time since diagnosis		
<1 year	20%	14%
1-2 years	17%	12%
3-5 years	3%	26%
>5 years	26%	24%
No answer	34%	24%
Time in BETAPLUS® program		
<1 year	29%	32%
1-2 years	23%	27%
3-5 years	29%	32%
>5 years	20%	3%
No answer	0%	6%
Use of Betaject®		
Yes	86%	70%
No	6%	6%
No answer	8%	24%

*Top three states listed
CIS, clinically isolated syndrome; MS, multiple sclerosis, RRMS, relapsing-remitting MS; SPMS, secondary progressive MS.

- Patient satisfaction with the visit was similar in both groups, with the majority claiming they were "very satisfied" (webcam versus personal: 60% versus 65%). The remaining patients were "satisfied" (Figure 1).

Figure 1. Patient satisfaction with the visit in general by visit type


■ Very satisfied ■ Satisfied
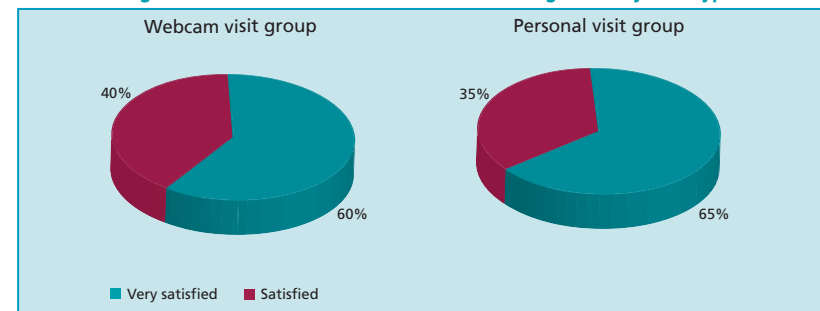
- Patients in both groups were satisfied with the choices of time slots for the visit, although a higher proportion were "very satisfied" in the webcam than personal visit group (43% versus 32%).
- A total of 80% of patients in the webcam visit group would accept both types of contact for future visits versus 38% in the personal visit group.
  - Slightly more than half of patients in the personal visit group (56%) restricted their preference to a personal visit for the next contact, but 38% would accept either method (Figure 2). The greater receptivity of patients in the webcam group to future webcam visits may result from their familiarity with this method of contact relative to those composing the personal visit group.

Figure 2. Patient preference for next contact by visit type

■ Nurse visit ■ Webcam visit ■ Both
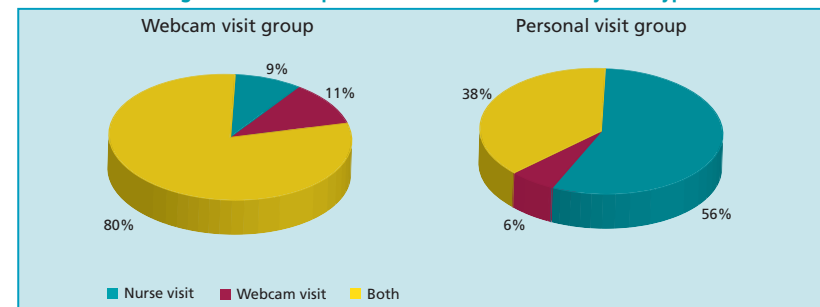
- Among survey respondents, the average time between solicitation and realisation of the visit was shorter for the webcam visit than for the personal visit (3.4 days versus 16.7 days) (Figure 3).
  - A total of 34% of respondents in the webcam visit group were seen within 1 day, whereas 41% of respondents in the personal visit group had to wait ≥7 days for a face-to-face visit with a BETA Nurse.

Figure 3. Time from contact request until visit by visit type
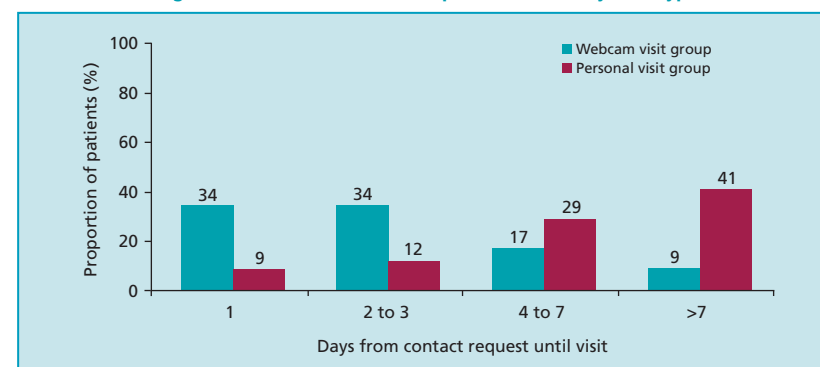
- Drop-out rates in the study population were the same regardless of whether the patient was seen via webcam or in person by a BETA Nurse (both 4%).
- The dropout rates of new patients assigned to the webcam (n=16) or personal visit groups (n=12) over July 2009–July 2010 were similar to those observed over the same time period in the overall BETAPLUS® study (n=582): 8.3%, 6.2% and 4.5%, respectively.
- Adverse events were more common in the webcam than personal visit group (31% versus 21%) (Table 2).
  - The percentage of patients for which severe adverse events were reported was similar (webcam versus personal: 11% versus personal visit 9%) (Table 2).
  - The proportion of patients who reported injection-site reactions or flu-like symptoms in the 3 months following their visit was also similar (webcam versus personal: 12% versus 14%).

Table 2. Adverse events reported within 3 months since visit

	Webcam visit group (n=35)	Webcam visit group (n=34)
All adverse events	31%	21%
Injection-site reactions/flu-like symptoms	12%	14%
Mild adverse events	20%	12%
Serious adverse events	11%	9%

Conclusions

- This is the first study to offer a webcam-based remote care service to an MS patient population.
- As overall satisfaction with the visit was similar between webcam and personal visit groups, this study demonstrates use of webcam technology as a viable channel for providing remote nurse support to MS patients.
- More timely patient contact was achieved with webcam-based visits: the time from request to visitation was five-times longer for personal than webcam visits. With webcam visitation, nurses could attend patients from any location. As travel is not required and route planning is therefore not needed, more time slots are available to the patient and on shorter notice.
- Individuals in the personal visit group were more likely to choose this method of contact for future visits, while the majority of webcam users were open to either type of visit in the future. This suggests that experience with webcam technology increases receptivity to this communication channel.
- No differences in drop-out rate were found between groups, suggesting that face-to-face visits did not improve patient retention in this study.
- In their tutorials, nurses instruct patients on how to minimize the incidence of adverse events. Common adverse events (e.g. flu-like symptoms, injection site reactions) and serious adverse events that can impact treatment adherence were similar in the webcam and personal visit groups.
  - However, the overall frequency of adverse events was slightly more common among webcam users.
- Relative to personal visits, webcam visits decrease logistical burdens and increase efficiency: a nurse realizes 1–2 face-to-face visits per 8-hour work day, but can attend to up to eight patients per 8-hour work day via webcam.
- While this study population was small and, as with any survey-based research, self-selection and response bias can occur, these data suggest that patients with MS are technologically savvy and capable of using webcam-based services. Webcam-based remote nurse visits thus have the potential to provide patients with MS the access to the resources and information needed for treatment success.

REFERENCES

1. De Broe S, Christopher F, Waugh N. The role of specialist nurses in multiple sclerosis: a rapid and systematic review. *Health Technol Assess* 2001;**5**:1-47.
2. Steinberg SC, Faris RJ, Chang CF et al. Impact of adherence to interferons in the treatment of multiple sclerosis: a non-experimental, retrospective, cohort study. *Clin Drug Investig* 2010;**30**:89–100.
3. Costello K, Kennedy P, Scanzillo J. Recognizing nonadherence in patients with multiple sclerosis and maintaining treatment adherence in the long term. *Medscape J Med* 2008;**10**:225.
4. Girouard N, Théorêt G. *Can J Neurosci Nurs* 2008;**30**:18-25.
5. Forbes A, While A, Mathes L et al. *Int J Nurs Stud* 2006;**43**:985-1000.
6. Tan H, Yu J, Tabby D et al. Clinical and economic impact of a specialty care management program among patients with multiple sclerosis: a cohort study. *Mult Scler* 2010;**16**:956-963.
7. Picone MA, Foley FW, Halper J et al. Expanding nursing support to patients with multiple sclerosis: The BETA nurse program. *Int J MS Care* 2003;**5**:127.
8. Instituto Brasileiro de Geografia e Estatística. Available from http://www.ibge.gov.br. Accessed Aug 28, 2010.
9. Federal Statistical Office. Available from http://www.destatis.de. Accessed Aug 28, 2010.
10. Official ISTAT estimate. Available from http://demo.istat.it. Accessed Aug 28, 2010.
11. Instituto Brasileiro de Opinião Pública e Estatística (IBOPE). Available from http://www.ibope.com.br. Accessed Aug 28, 2010.
12. Instituto Brasileiro de Geografia e Estatística. Available from http://www.ibge.gov.br. Accessed Aug 28, 2010.
13. Kraft GH, Kennedy P, Lowenstein N et al. Staying connected. The use of computer-related accessible technology among people with MS. *Int J MS Care* 2009;**11**:3-13.
14. Esclarecimento Multiplo. Available from http://www.esclarecimentomultiplo.com.br/scripts/index.php. Accessed Aug 28, 2010.