Alzheimer's Disease and Its Treatment With a Novel Transdermal Patch Therapy: Survey of Caregiver Experiences

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ABSTRACT

Objective: To investigate experiences and perceptions of caregivers of patients with Alzheimer's disease using transdermal patch therapy.

Method: Assessment methods for the pilot study comprised an interview between the caregiver and a moderator, an interview between 1 moderator and 2 caregivers, or a video diary. The subsequent quantitative study involved a 45-minute telephone questionnaire. For both studies, participants were required to be the principal caregiver of a patient with Alzheimer's disease who had been receiving transdermal patch therapy for at least 3 months. Their responses were grouped into the following 6 themes: interpersonal relationships, impact on caregivers, from symptoms to treatment, help and support for caregivers, daily routine, and caregiver experience with the patch.

Results: Overall, 206 caregivers were enrolled from France, Germany, Greece, Spain, and the United States between July 2009 and January 2011 (pilot study: N = 56; quantitative study: N = 150). The studies revealed that caregivers of patients with Alzheimer's disease experienced emotional and practical impacts, and many felt that they had not received sufficient information from health care providers about Alzheimer's disease, treatment options, or available support. In the quantitative study, 47% of caregivers who had been caring for the patient prior to diagnosis (61% of total respondents) felt that there had been a delay in seeking medical advice, frequently due to slow onset of symptoms of Alzheimer's disease. In both studies, patch therapy was considered more convenient and easier to administer than oral treatments. The practical and efficacy advantages of the patch often translated into emotional benefits.

Conclusions: With recent data highlighting the importance of early initiation of symptomatic Alzheimer's disease therapy and the importance of reaching an optimal therapeutic dose, reasons for delay in treatment initiation need to be explored. Information that patients and caregivers receive at the time of diagnosis may aid therapeutic decisions.

Prim Care Companion CNS Disord 2012;14(4):doi:10.4088/PCC.11m01142

Submitted: *January 18, 2011; accepted March 6, 2012.*
Published online: *August 16, 2012.*

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Alzheimer's disease is a progressive neurodegenerative disorder characterized by cognitive dysfunction, impairment of activities of daily living, and behavioral disturbances.[1] As the disease progresses, persons with Alzheimer's disease require increasing assistance from caregivers.[2] Caregivers typically spend 2 hours per day caring for persons with mild Alzheimer's disease, increasing to nearly 14 hours per day for persons with severe Alzheimer's disease.[3] Caregivers of persons with Alzheimer's disease have a poorer health-related quality of life, compared with the general population, and higher rates of anxiety and depression.[2,4]

A number of surveys have sought to capture the personal impact of Alzheimer's disease from the caregiver's perspective, focusing on impact of dementia diagnosis and quality of life in dementia.[5–11] The majority of these studies were conducted prior to 2007. However, in 2007, based on the results of the large Investigation of transDermal Exelon in ALzheimer's disease trial (IDEAL), the rivastigmine patch was approved for the treatment of mild-to-moderate Alzheimer's disease.[12] The rivastigmine patch may offer a valuable alternative to oral treatment options. In the IDEAL trial, 72% of caregivers preferred patches to capsules for drug delivery.[13]

The objective of this study was to investigate the experiences and perceptions of caregivers of persons with Alzheimer's disease who had all been prescribed transdermal patch therapy. Here, we present the results from 2 studies. The qualitative pilot study was designed to establish the merit for more extensive quantitative research. The quantitative study was conducted to further evaluate and quantify the caregivers' experiences with the transdermal patch for the treatment of Alzheimer's disease and to investigate the potential impact of novel drug delivery methods on caregiver burden.

METHOD

Qualitative Pilot Study

Participants were enrolled from the United States, France, Germany, and Spain between July and September 2009. Caregivers were contacted directly through treatment centers, doctors, and caregiver support networks.

For inclusion, participants were required to have been the principal caregiver for at least 12 months of a person with mild-to-moderate Alzheimer's disease receiving transdermal patch treatment. The patient was required to have been receiving transdermal patch Alzheimer's disease treatment for more than 3 months. All caregivers had to have helped with medication, to have applied or helped apply the transdermal patch, and to have taken the patient to see his/her doctor. In addition, they also had to assist with at least 1 other activity such as housework, meal preparation, or shopping. All caregivers provided informed consent to participate in the study.

Three methods of caregiver assessment were used, designed to allow caregivers to express the range of implications of caring for a person with Alzheimer's disease: (1) interview between 1 moderator and 1 caregiver;

Clinical Points

- In these surveys, caregivers often reported a delay between observation of the first symptoms of Alzheimer's disease and formal diagnosis and treatment of Alzheimer's disease.
- In general, caregivers wanted more information at the time of diagnosis as well as the chance to participate in therapeutic decisions.
- The caregivers reported that transdermal patch therapy was advantageous and had a positive impact on daily life due to ease of application and avoiding conflict with the patient.

(2) interview between 1 moderator and 2 caregivers, designed to enhance discussion between caregivers to uncover aspects not addressed in the 1-to-1 interviews; and (3) a video diary of the caregiver.

Moderator–caregiver interviews were semistructured and conducted in accordance with specific discussion guides, which included a set of questions and stimulus exercises designed to assess caregiver thoughts on Alzheimer's disease. The video diary was recorded over 7 days. The caregiver was asked to adhere to the instructions of the diary and record his/her thoughts of the day, answer the same set of daily questions, and discuss a topic of the day.

Caregiver responses were pooled and grouped into 8 themes: interpersonal relationships, impact of Alzheimer's disease on caregivers, from symptoms to treatment, help and support for caregivers, the care environment, daily routine, caregiver experience with the transdermal patch, and caregiver influence on treatment. Data were not grouped by country of residence. This was a qualitative study designed to provide a basis for further quantitative research; therefore, no statistical analyses were used.

Quantitative Study

Participants were enrolled from France, Germany, and Greece. Caregivers were contacted by health care professionals including doctors, nurses, and pharmacists. The quantitative interviews were conducted between November 2010 and January 2011. The inclusion criteria were consistent with the pilot study. All caregivers provided informed consent to participate in the study.

Caregiver assessment was performed by a 45-minute telephone interview that comprised 44 questions. The questions were specifically designed to validate and further assess 6 of the themes identified in the pilot research: interpersonal relationship, impact on caregivers, from symptoms to treatment, help and support for caregivers, daily routine, and caregiver experience with the transdermal patch. Caregiver responses were pooled and grouped by country.

Both studies were commissioned by Novartis. Novartis sponsored Branding Science (UK) Limited (London, United Kingdom) to conduct the interviews. The interviewers were trained to accurately conduct the survey, in accordance with the professional standards of their respective countries, and the European Pharmaceutical Market Research Association code of practice was rigorously applied.

RESULTS

Study Participants

The pilot study was based on the responses from 56 caregivers from the United States (n = 18), France (n = 17), Spain (n = 12), and Germany (n = 9). Responses of 35 caregivers were assessed by individual interview with a moderator, 8 (4 pairs) by dual interview with a moderator, and 13 by video diary and indicated that a more extensive quantitative study was warranted. The quantitative study was based on the responses from 150 caregivers from France (n = 50), Germany (n = 50), and Greece (n = 50).

The majority of caregivers in the quantitative study were female (74%) and typically 41–60 years of age, and all caregivers were related to the patient. Overall, 63% of patients were female, all were aged 50 years or older, and 47% of patients had received an official diagnosis of Alzheimer's disease in the previous 1 to 2 years. Patient and caregiver characteristics in the quantitative study are summarized in Table 1.

Caregivers were asked questions about the patient's ability to carry out routine daily activities. These activities included bathing and dressing, taking medication, preparing hot drinks or main meals, going to doctor appointments, posting a letter, and shopping for groceries. Overall, in the quantitative study, most patients required assistance with the majority of everyday tasks, although patient ability varied between countries: Greece had the largest proportion of patients with limited ability (48%) compared with 34% and 12% for France and Germany, respectively.

The Interpersonal Relationship

In the quantitative study, caregivers adopted a number of different roles, describing themselves as acting parents, housekeepers, nurses, personal secretaries, friends, and partners. Some reported a shift in role from spouse or child to that of the parent. Many respondents (41%) felt that being a caregiver, or Alzheimer's disease itself, had impacted their relationship with the patient. Caregivers reported both positive and negative impacts.

Caregivers provide reassurance, support, and companionship; try to maintain the patient's independence; and try to ensure that the patient enjoys the time he/she has left. Providing emotional support and protection was found to be particularly draining, with additional effort required to maintain the illusion to the patients that there is no illness.

In terms of motivation and the factors leading to becoming a caregiver, respondents in the quantitative study mainly assumed the role out of closeness/affection/love/altruism (37%), because they live in close proximity to the patient (31%), out of a sense of duty to their loved one (22%), or because nobody else was willing (21%).

Table 1. Caregiver and Patient Characteristics in the Quantitative Study[a]

Characteristic	%
Caregivers	
Gender	
Male	26
Female	74
Age, y	
≤ 30	2
31–40	13
41–50	33
51–60	33
61–70	12
> 70	7
Relationship to patient	
Sibling	2
Spouse/partner	18
Offspring	54
Family relation (other)	26
Employment	
Full-time	38
Part-time[b]	21
Not employed	41
Patients	
Gender	
Male	37
Female	63
Age, y	
51–60	2
61–70	11
71–80	51
> 80	36
Time since diagnosis, y	
1–2	47
3–5	36
> 6	14
Do not know/did not answer	3
Received treatment prior to the rivastigmine patch[c]	59
Rivastigmine capsules	44
Donepezil	33
Memantine	11
Galantamine	8
Other	31

[a] Caregivers: N = 150; patients: N=150.
[b] < 35 hours per week.
[c] Patients may have received more than 1 medication.

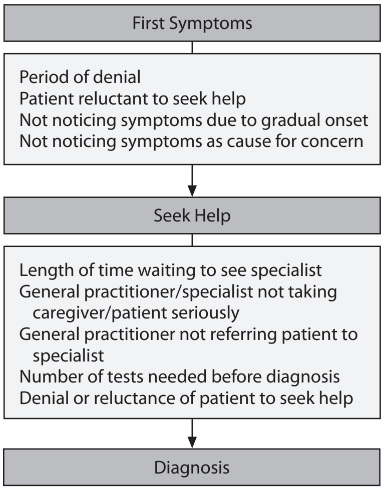
Impact of Alzheimer's Disease on Caregivers

Caregiver responses in both studies revealed compromises with family life and living situations, personal time, jobs and careers, and holiday leave. Many of the caregivers in the quantitative study were employed, either in full-time or part-time employment (Table 1), and 33% of respondents commented that their job had been impacted upon since becoming a caregiver.

It was noted that Alzheimer's disease was also invasive on other peoples' lives, isolating, reduced the caregivers' quality of life, and induced feelings of hopelessness or aggression or even the desire for their loved one to no longer be with them. The biggest challenges faced by caring for a person with Alzheimer's disease were described as dealing with the nature of the disease and its progression (36%), having patience and understanding (31%), the decline of their loved one (27%), dealing with time demands (25%), and impact on the caregiver's own life (15%).

The isolating nature of Alzheimer's disease had a great emotional impact on the caregivers, and caregivers can struggle to cope with the responsibility. Caring for someone with Alzheimer's disease was found to be a life-changing experience but had a different impact depending on the relationship between the patient and caregiver.

Figure 1. Diagram Depicting the Delay Between the First Symptoms of Alzheimer's Disease and Seeking a Diagnosis



From Symptoms to Treatment

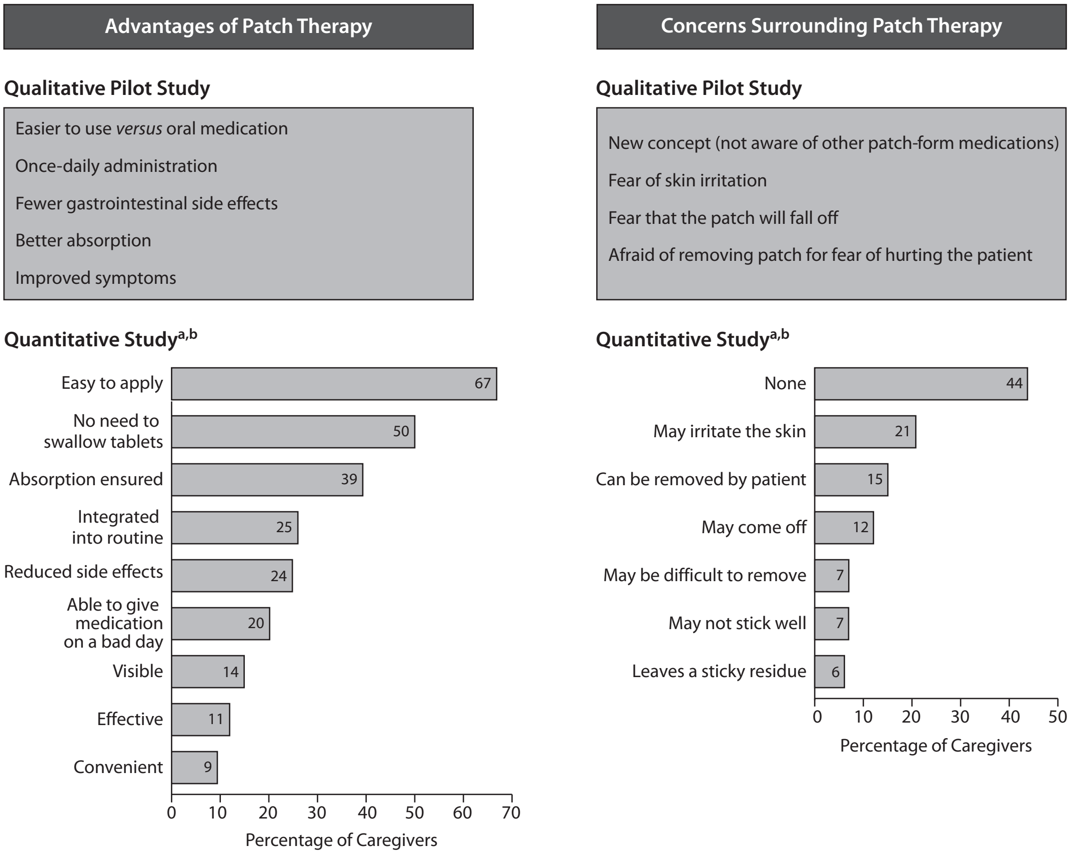
There is often a delay between the first symptoms of Alzheimer's disease and diagnosis (Figure 1). There are multiple reasons for the delay in seeking help: symptoms are often subtle and gradual or considered part of the normal aging process, some changes can only be assigned to Alzheimer's disease retrospectively, there may be a lack of awareness of specific Alzheimer's disease symptoms, or family members may refuse to admit that there is a problem. Overall, in the quantitative study, 47% of the caregivers who had been caring for the patient prior to diagnosis (61% of total respondents) felt that there had been a delay in seeking medical advice. Of the 61% who were caregivers before diagnosis, 90% reported that the symptoms of Alzheimer's disease occurred gradually, and not noticing symptoms due to their gradual onset was frequently noted as a reason for a delay in seeking medical advice (84%).

Analysis of all respondents found that 17% of caregivers felt that there was a delay in getting an official diagnosis. Factors that led to this delay included length of time waiting to see specialist (65%), general practitioner reluctance to make a referral (46%), number of tests needed to make a firm diagnosis (42%), general practitioner not taking the patient/caregiver seriously (38%), specialist not taking the patient/caregiver seriously (23%), or denial or reluctance of the patient to seek help (12%).

Help and Support for Caregivers

Caregivers learn to cope over time and are able to impart advice to others. However, results from the pilot study highlight a need for more support in the future; some

Figure 2. Caregiver Experiences With Transdermal Patch Therapy in the Pilot and Quantitative Studies



[a]Quantitative study: N = 150.
[b]Spontaneous responses given by more than 5% of caregivers.

caregivers felt that there is a lack of informative, practical, and emotional support. Caregivers were divided according to their perceived need for, and awareness of, support, but those who were accessing support (all types) generally found it to be invaluable. Through keeping a video diary, some of the caregivers became determined to seek more outside help or alternative care arrangements.

Information received upon diagnosis may not fully prepare caregivers for their roles. Caregivers said they felt burdened by too much information, were still in denial regarding the inevitable disease progression, or believed the information with which they were being provided to be no substitute for experience.

The majority (85%) of caregivers in the quantitative study said that, in addition to the information provided by the health care provider, they had actively sought information on Alzheimer's disease, and over half (55%) regularly sought additional information. Only 33% of caregivers received advice specifically for the caregiver from the health care provider, while 42% received this information from another source or found the information themselves. Just over a quarter (26%) of caregivers said they had not been given information or had not found information specifically for caregivers.

Daily Routine

Routine and order make the day easier for the patient with Alzheimer's disease and the caregiver. The daily routine of a caregiver focuses upon stimulating the patient to keep his/her mind and body active, with the aim of delaying disease progression, maintaining normal enjoyment of life, reducing patient mood swings, and trying to create moments of joy.

The main day-to-day aim of the caregiver was found to be conflict avoidance, achieved by maintaining familiarity, avoiding stress, controlling the patient's mood, and enforcing routine. While the caregivers act to ensure a "good day" for the patient, they recognized that they have limited influence and are unable to turn around a "bad day." On these days, patience and sense of humor were particularly important.

When caregivers were asked how the patch had helped them in caring for the patient, the responses from the quantitative survey found positive effects on the daily routine. Caregivers commented that the patch was easy to apply (53%), avoided conflict with the patient (13%), was reassuring (8%), and was easy to remember (7%).

Caregiver Experience With the Transdermal Patch

Typically, the physician rather than the caregiver initiated the switch from oral cholinesterase inhibitors to patch therapy, as caregivers were generally not aware of the rivastigmine patch as an alternative treatment. Only 17% of caregivers in the quantitative study were aware of the patch before it was prescribed, and of these, only 27% asked the health care provider for patch treatment. Several caregivers in the pilot study responded that they would have asked for the rivastigmine patch if they had known about it.

Caregiver experiences with the transdermal patch were generally positive. Caregiver observations in the quantitative study included the following: patient more calm and less irritable (71%), patient deterioration slowed (66%), maintained short-term memory (52%), maintained ability to conduct tasks or conversations (50%), and maintained long-term memory (43%). Of the caregivers of patients who had received another Alzheimer's disease medication prior to the patch (59%), 60% reported fewer side effects with the patch compared with other forms of Alzheimer's disease medication. In both studies, the main practical advantage of the patch was its ease of use, which was found to translate into emotional benefits for the patient and caregiver. Common, unprompted caregiver responses regarding the advantages and concerns surrounding patch therapy are detailed in Figure 2.

DISCUSSION

To our knowledge, these are the first published surveys of caregivers' experiences of caring for patients with Alzheimer's disease following the availability of a transdermal patch therapy for this condition. Previous surveys have reported differences in country-dependent needs and viewpoints with respect to treatment compliance, medication management, and quality of life aspects of Alzheimer's disease.[11] However, the surveys have not included data pertaining to transdermal patch therapy. The findings from the pilot study were used to establish merit for and aid design of the more extensive quantitative survey. The current studies were conducted to explore caregiver insight into transdermal patch therapy in a real-life setting.

Consistent with earlier studies,[5–11] we found that the caregiver took on a number of different roles that had a significant practical, social, emotional, and financial impact on their lives. Caregivers experienced a profound impact on their personal life and career, and many experienced a negative impact on their relationship with the patient. We found that the main day-to-day aim of the caregiver was conflict avoidance. Caregivers in the surveys felt that transdermal patch therapy was advantageous and had a positive impact on daily life due to ease of application and conflict avoidance.

Caregivers frequently responded that the information received upon diagnosis may not fully prepare them for their roles; the majority of caregivers actively sought additional information from various sources, suggesting that the information provided by the health care providers may not meet the needs of the caregivers. Information that patients and caregivers receive at the time of diagnosis about Alzheimer's disease and available treatment options is a topic of concern because an absence of information may prevent participation in therapeutic decisions.

Recent studies highlighted that timely detection and diagnosis of dementia are essential, and individuals with Alzheimer's disease, their families, and caregivers have a right to the best-available treatment at diagnosis.[14] We found that caregivers often reported a delay between observation of the first symptoms of Alzheimer's disease and formal diagnosis and treatment. Indeed, approximately half of caregivers who were caring for the patients before diagnosis felt that there had been a delay in seeking treatment. Similar to a previous survey investigating the emotional response to diagnosis in caregiver/patient dyads, the delay in a caregiver seeking help was often due to denial, the gradual onset of symptoms, or lack of caregiver awareness and understanding of specific Alzheimer's disease symptoms.[5] In addition to caregivers reporting a delay in seeking help, responses also revealed a delay in receiving an official diagnosis due to the length of time spent waiting to see a specialist, the general practitioner or specialist not taking the patient seriously, or the number of tests needed to make a firm diagnosis.

Within the scientific and medical community, there is an expanding awareness surrounding cholinesterase inhibitor–based therapy for Alzheimer's disease with respect to available therapeutic options and suitable target populations, as well as optimum dosing and treatment schedules. Higher doses of oral rivastigmine have been associated with better scores on the Alzheimer's Disease Assessment Scale–cognitive subscale, Clinician Interview-Based Impression of Change–plus caregiver interview, and the Mini-Mental State Examination.[15] Whether the clinician chooses to target high-dose cholinesterase inhibition immediately or later, patients should be encouraged to reach what is considered to be an optimal therapeutic dose and to stay on treatment long term.[14]

The rivastigmine transdermal patch is currently the only licensed transdermal therapy for the treatment of persons with mild-to-moderate Alzheimer's disease. In 2007, the results of the IDEAL study demonstrated that the 9.5-mg/24-hour rivastigmine patch provides similar efficacy to the highest dose of rivastigmine capsule but with a markedly improved tolerability profile.[12] A substudy of the IDEAL trial demonstrated that 72% of caregivers preferred patches to capsules for drug delivery on the basis of ease of use and ease following the schedule.[13] This finding is supported by the current surveys that revealed that caregivers found the transdermal patch to be an advantage, as it was easy to apply and eliminated the need for patients to swallow tablets.

In the current surveys, we found that the physician rather than the caregiver generally initiated the switch from oral cholinesterase inhibitors to the rivastigmine patch. However, in the pilot and subsequent quantitative surveys, caregivers did report improved practicality when rivastigmine patch treatment was initiated in their patient with Alzheimer's disease, and this translated into emotional benefits for the caregiver.

Limitations of these studies include that the population sizes were relatively small, only a few countries participated, and only 1 assessment type was used in the quantitative study. The small population sizes for each participating country mean that the results may not be broadly applicable. A larger study population and other means of assessing caregiver responses may provide more detailed insight into caregivers' experiences with transdermal patch therapy.

In summary, the results of these surveys revealed some important aspects of caregivers' experience with Alzheimer's disease therapy. In particular, there was found to be a delay from first symptom to diagnosis. With recent data highlighting the importance of early initiation of cholinesterase inhibitor–based therapy and the importance of reaching an optimal therapeutic dose, reasons for delay in treatment initiation and caregiver understanding of transdermal patch treatment need to be fully explored. Information that patients and caregivers receive at the time of diagnosis about Alzheimer's disease and available treatment options is a topic of concern because an absence of information may prevent participation in therapeutic decisions.

Drug names: donepezil (Aricept and others), galantamine (Razadyne), memantine (Namenda), rivastigmine (Exelon and others).

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Potential conflicts of interest: **Dr Martínez-Lage** has received honoraria from and served as a speaker or on advisory boards for Novartis. **Mr Pepp** was an employee of Branding Science (UK) Limited during the pilot study.

Funding/support: Novartis sponsored Branding Science (UK) Limited (London, United Kingdom) to conduct the interviews and surveys among the participating caregivers. Fishawack Communications Ltd (Oxford, Oxfordshire, United Kingdom) provided medical writing and editorial support in the production of this manuscript; this service was sponsored by Novartis.

Previous presentation: The data from the pilot study were presented in poster format at the 26th Conference of Alzheimer's Disease International; March 26–29, 2011; Toronto, Canada.

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