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REPORT

HEALTH-RELATED QUALITY OF LIFE, DIAGNOSIS AND TREATMENT EXPERIENCES OF AL AMYLOIDOSIS PATIENTS

ABOUT MYELOMA PATIENTS EUROPE (MPE)

Myeloma Patients Europe (MPE) is an umbrella organisation representing 49 myeloma (also known as multiple myeloma) and AL amyloidosis patient groups and associations from across Europe and further afield. Our mission is to provide education, information and support to members, and to advocate at European, national and local levels the best possible research and equal access to the best possible treatment and care. Together, we support thousands of myeloma and AL amyloidosis patients, as well as their caregivers, every day.

This project is part of MPE's **AL Amyloidosis Workstream.** Since 2016, MPE has worked closely with the AL amyloidosis patient advocacy community to support its growth and impact. The strategic objectives of the AL Amyloidosis Workstream are to:

- Support AL amyloidosis patients and their families as well as the AL amyloidosis patient advocacy community in Europe.
- Raise awareness of the complexity and challenges of the disease amongst key stakeholders, including policymakers and clinicians.
- Understand and overcome treatment access challenges.
- Investigate and respond to the informational and educational needs of AL amyloidosis patients, as well as manage educational resources around new treatments, diagnosis and care, and support members in getting this information to patients at a local level.
- Increase the capacity of our members to engage in effective and informed patient advocacy to best serve this population.

ACKNOWLEDGEMENTS

MPE would like to extend a special thank you to the patients who participated in this study; we are grateful for your time and generosity in sharing your experiences and insights. We thank our members for sharing this project with their patient community, our staff and our member organisations for facilitating the focus group discussions required for this research.

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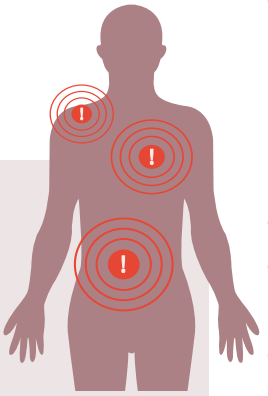
INTRODUCTION

Amyloidosis is a group of rare diseases with similar characteristics. Amyloidosis occurs when soluble proteins misshape and bind together, giving rise to insoluble aggregates called amyloid fibrils that deposit in organs and tissues, and interfere with their normal functioning. Several proteins can form amyloid fibrils and the type of protein determines the disease (for example, localised amyloid precursor proteins deposit in the brain in Alzheimer's disease). The body cannot degrade these amyloid deposits and amyloidosis without treatment may lead to life-threatening organ failure.

AL amyloidosis is the most prevalent type of amyloidosis. However, it is still considered a rare condition, with an estimated incidence of nine cases per million person-years. It affects men slightly more often than women and the average age of diagnosed patients is 63 years. This disease (also referred to as light chain amyloidosis) arises from abnormal plasma cells, a type of immune cell responsible for antibody production. It is a bone marrow disease that affects the organs outside it. In the bone marrow of AL amyloidosis patients, a plasma cell clone of abnormal plasma cells produces misfolded immunoglobulin light chains. These aberrant antibodies deposit in organs and tissues, interfering with normal functioning. Amyloid proteins disrupt normal functioning because the body cannot remove them, which leads to accumulating these proteins. Specifically, accumulating these proteins in vital organs such as the heart, kidneys, liver and gastrointestinal system can cause severe organ dysfunction. Around 12-15% of patients with myeloma may develop symptomatic AL amyloidosis. Up to 30% of patients with a new myeloma diagnosis may have asymptomatic deposits of amyloid proteins in their organs (Myeloma Patients Europe, What is Amyloidosis?, 2023).

12-15% of patients with myeloma may develop symptomatic AL amyloidosis



In 2015, the Amyloidosis Research Consortium in the United States hosted an externally-led Patient-Focused Drug Development meeting. The findings are summarised in The Voice of the Patient report (Amyloidosis Research Consortium, 2016). Key findings included difficulty distinguishing between symptoms of disease and treatment side effects, a significant burden of AL amyloidosis and its' treatment on day-to-day functioning, challenges finding healthcare providers and navigating the health system, as well as side effects and contraindications to (off-label) treatments. In the report, AL amyloidosis patients also described the quality-of-life impacts for themselves and their families that extend beyond the time seeking and obtaining a diagnosis (Lousada I. and Boedicker M. 2020). However, these publications pre-date the availability of daratumumab, the basis of the only approved regimen for AL amyloidosis treatment in Europe: Dara-CyBorD (daratumumab, cyclophosphamide, bortezomib, dexamethasone).

We sought to better understand the patient journey and the quality of life impacts of AL amyloidosis. The following research questions guided the direction of the study:

- What are the experiences of patients in the process of getting diagnosed with AL amyloidosis?
- How does AL amyloidosis impact the quality of life of patients?
- What are patients' preferences, experiences and unmet needs regarding AL amyloidosis treatment?

This report summarises the methods and results of this qualitative research on health-related quality of life, diagnosis and treatment experiences of AL amyloidosis patients.

METHODS

This research occurred across three phases: a targeted literature review, a survey and focus group discussions among survey participants.

Literature review

The project's first phase was a targeted literature review conducted by MPE research staff to learn about the current landscape of patient experience and quality of life impacts of AL amyloidosis from seeking a diagnosis to living with the disease.

Insights from the literature review informed the development of a survey and discussion guide for the focus groups.

Interviews and discussion groups

MPE developed and distributed a survey that consisted of 26 open-ended questions aimed at addressing the three overarching research questions (see appendix 1). The survey was disseminated through MPE member organisations and MPE's patient network. Once they had completed the survey, respondents were invited to one of six virtual focus groups where they discussed survey follow-up questions, as directed by the discussion guide, (see appendix 2) to capture additional data, experiences and thoughts on living with AL amyloidosis. The discussions were led by MPE research staff from January to September 2023.

A mixed methods approach was applied to the survey, where qualitative data was formatted for thematic consistency and analysed quantitatively to produce counts and percentages. All focus group discussions were recorded, transcribed and thematically analysed. Results are presented in this report by survey question.

RESULTS

A total of 24 AL amyloidosis patients responded to the survey. The demographic and clinical characteristics of these survey participants are shown in Table 1 and Table 2, respectively. Six focus groups with 19 AL amyloidosis patients from across Europe, Israel and Canada were held. Patients who responded to the survey, but did not participate in the focus group, were assumed to be too sick to attend or had scheduling difficulties.

Table 1. Demographic characteristics of AL amyloidosis patients who participated in the survey and focus groups. All patients who responded to the survey were invited to attend a focus group.

CHARACTERISTIC	PATIENTS*, †	
	Survey (n=24)	Focus Group (n = 19)
Age, in years	**N (%)**	**N (%)**
41 – 60	8 (33%)	7 (37%)
61 – 80	14 (58%)	10 (53%)
No response	2 (8%)	2 (11%)
Gender		
Female	14 (58%)	12 (63%)
Male	8 (33%)	5 (26%)
No response	2 (8%)	2 (11%)
Country of residence		
Canada (CA)	2 (8%)	1 (5%)
Germany (DE)	1 (4%)	0 (0%)
Denmark (DK)	1 (4%)	1 (5%)
Israel (IL)	6 (25%)	3 (16%)
Italy (IT)	1 (4%)	1 (5%)
Slovenia (SI)	4 (17%)	4 (21%)
Spain (ES)	9 (38%)	9 (47%)
Current living situation		
I live alone	2 (8%)	1 (5%)
I don't live alone (e.g., living with a partner, family, friends etc.)	20 (83%)	16 (84%)
No response	2 (8%)	2 (11%)
Activity over the past month		
Normal with no limitations	6 (25%)	4 (21%)
Not my normal self, but able to be up and about with fairly normal activities	11 (46%)	9 (47%)
Not feeling up to most of the things, but in bed or chair-less than half the day	4 (17%)	3 (16%)
Able to do little activity and spend most of the day in bed or a chair	1 (4%)	1 (5%)
No response	2 (8%)	2 (11%)

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**: 19 patients overlap between the survey and focus groups; †: Numbers may not total 100% due to rounding up.*

Table 2. Clinical characteristics of AL amyloidosis patients who participated in the survey and focus groups. All patients who responded to the survey were invited to attend a focus group.

CHARACTERISTIC	PATIENTS*, †	
	Survey (n=24)	Focus Group (n = 19)
Time with AL amyloidosis	**N (%)**	**N (%)**
Less than 2 years	8 (33%)	8 (42%)
Between 2 and 5 years	8 (33%)	3 (16%)
Between 5 and 10 years	4 (17%)	4 (21%)
More than 10 years	2 (8%)	2 (11%)
No response	2 (8%)	2 (11%)
Other diagnoses		
Myeloma diagnosis		
No	17 (71%)	12 (63%)
Yes – diagnosed together	4 (17%)	4 (21%)
Yes – diagnosed prior to AL amyloidosis	1 (4%)	1 (5%)
No response	2 (8%)	2 (11%)
Other cancer diagnosis‡		
Lymphoma	-	1
Pancreatic Cancer	-	1
Organ dysfunction diagnoses‡		
Heart Failure/ Transplant	-	6
Kidney Failure	-	1
Multiple Organ Failure	-	1
Current treatment situation		
Currently receiving treatment	15 (63%)	11 (58%)
Not currently receiving treatment	8 (33%)	7 (37%)
No response	1 (4%)	1 (5%)
Reason for not receiving treatment		
In remission	6/8 (75%)	6/7 (86%)
Post-transplant	1/8 (13%)	1/7 (14%)
Stable disease	1/8 (13%)	0/7 (0%)
Lines of treatment (including current)		
1	9 (38%)	8 (42%)
2 – 4	11 (46%)	8 (42%)
More than 4	1 (4%)	0 (0%)
No response	3 (13%)	3 (16%)

CHARACTERISTIC	PATIENTS*, †	
	Survey (n=24)	Focus Group (n = 19)
Current AL amyloidosis treatment/ regimen§	**N (%)**	**N (%)**
Bortezomib, cyclophosphamide, dexamethasone (VCD)	2/15 (13%)	1/11 (9%)
Daratumumab, bortezomib, dexamethasone (DaraVd)	1/15 (7%)	1/11 (9%)
Daratumumab (Dara)	5/15 (33%)	3/11 (27%)
Daratumumab, bortezomib (DaraV)	1/15 (7%)	1/11 (9%)
Daratumumab, dexamethasone	1/15 (7%)	1/11 (9%)
Daratumumab, lenalidomide (DaraR)	1/15 (7%)	1/11 (9%)
Daratumumab, pomalidomide, dexamethasone (DaraPd)	1/15 (7%)	1/11 (9%)
Daratumumab, other (not specified)	1/15 (7%)	0/11 (0%)
Lenalidomide, dexamethasone (Rd)	1/15 (7%)	1/11 (9%)
Clinical trial	1/15 (7%)	1/11 (9%)

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**: 19 patients overlap between the survey and focus groups.*
†: Numbers may not total 100% due to rounding up.
‡: Data is self-reported and captured from focus group discussions; conditions included may or may not be associated with AL amyloidosis diagnosis.
§: Data is self-reported and captured from survey results among participants who responded they are "Currently receiving treatment; reported treatment regimens may not be accurate and/or exhaustive, and only reflects patients' understanding of their own care plan.

PATIENT EXPERIENCES AT TIME OF DIAGNOSIS

PHYSICAL SYMPTOMS THAT CAUSED PATIENTS TO START MEDICAL TESTS, WHICH LED TO THE DISCOVERY OF AL AMYLOIDOSIS

When patients were asked about the physical symptoms that prompted them to undergo medical tests, leading to the diagnosis of AL amyloidosis, the survey participants reported a variety of initial symptoms that affected multiple bodily systems. These included:

- Fatigue (mentioned by 13 patients).
- Decreased physical fitness or weight loss (mentioned by four patients).
- Inability to breathe or breathlessness (mentioned by five patients).
- Diarrhoea (mentioned by four patients).
- Swelling in their legs (mentioned by four patients).

Additionally, four patients who responded to the survey noted that abnormal blood laboratory levels or scans led them to seek medical attention and ultimately resulted in the diagnosis of AL amyloidosis.

When focus group patients were asked to describe the physical symptoms that motivated them to seek testing, ultimately leading to the discovery of AL amyloidosis, they mentioned the following symptoms:

- Cardiovascular issues, such as chest tightness or the sensation of someone sitting on their chest (mentioned by seven patients).
- Intestinal problems, including diarrhoea or colitis (mentioned by seven patients).
- Swelling or a feeling of "thickness" and fluid build-up, particularly in the legs, leading to reduced mobility (mentioned by six patients).
- Urine or kidney issues, such as foamy urine (mentioned by five patients).
- Paraesthesia, a burning, prickly sensation, especially in the feet (mentioned by three patients).

During the focus group discussions, patients also recounted uncomfortable symptoms and experiences related to the diagnostic process. For instance, one patient underwent multiple kidney biopsies and experienced foamy urine. Another patient endured years of colitis before developing symptoms like chest pains, fluid in the lungs and poor heart function. Another patient had been living with heart failure, while one patient mentioned years of vomiting and pain in their arms before receiving a diagnosis.

THE DIAGNOSIS EXPERIENCE

In the focus groups, six patients described receiving their diagnosis relatively quickly, however, this was often due to severe organ failure or damage. These patients described the organ damage as being treated symptomatically. The symptoms were the main issue and, in these circumstances, their organ damage was treated by specialists with some knowledge of amyloidosis, which enabled them to get a rapid diagnosis. However, even though the time to diagnosis was short, this should be considered a late diagnosis, since the disease remained undetected until organ damage.

These cases included heart malfunction (one patient), kidney damage, foamy urine and swollen legs (one patient), symptoms including vomiting and pain in the arms (one patient), and cases requiring heart transplants, as well as kidney and gastrointestinal problems (one patient). Patients who sought care at larger facilities with AL amyloidosis specialists received a diagnosis in a matter of weeks (e.g., 1-3 weeks, mentioned by two patients). On the other hand, five patients experienced AL amyloidosis symptoms for years before their diagnosis was confirmed. Notably, one patient mentioned receiving their final diagnosis via email, after travelling to a larger city to seek care and do a biopsy at a specialised, private clinic. After receiving their diagnosis, three patients expressed the need to seek care at larger facilities with AL amyloidosis specialists, which offered more experience in AL amyloidosis diagnosis, treatment and participation in clinical trials.

Among survey respondents, patients described their experiences in receiving a diagnosis as follows:

- Three patients expressed relief upon finally receiving their diagnosis.
- Four patients found the diagnosis to be a source of worry or a sobering realisation.
- Another four patients described the diagnosis as devastating or horrifying.
- One patient mentioned that their initial diagnosis was myeloma and only changed to AL amyloidosis after an inconclusive bone marrow biopsy and a kidney biopsy.

> *"[Receiving the AL amyloidosis diagnosis] … was a moment of shock, because I was expecting to be told something light. I could not believe it."*
>
> AL AMYLOIDOSIS PATIENT

While participants in the survey openly shared their feelings and emotional responses to the diagnosis experience, patients in the focus groups focused on describing their journeys through the healthcare system to secure their diagnosis. While not all patients could recall specific procedures, those who could described undergoing the following diagnostics:

- Various diagnostic tests, i.e., scans such as MRI or PET (three patients), echocardiography/cardiac imaging (eight patients) and blood and urine tests (four patients).
- A range of biopsies, including bladder biopsies (one patient), heart/cardiac biopsies (three patients), kidney biopsies (two patients), liver biopsies (one patient), skin biopsies (two patients), stomach biopsies (one patient) and bone marrow biopsies (five patients).

However, it's worth noting that six patients in the focus groups couldn't recall the specific procedures, tests, or biopsies they underwent during their diagnostic journey.

The time taken to reach a diagnosis has important impacts beyond physical health

Participants in the focus groups shared their experiences, revealing variations in the time it took to receive a diagnosis and the impact of the diagnosis itself. The timing of the diagnosis is crucial not only for health and emotional reasons but also because having an AL amyloidosis diagnosis can affect eligibility for government support.

In the survey, several patients provided insights into their work situations and government support:

- Four patients stated that they were either on sick leave (three patients) or receiving a disability pension from the government. One patient mentioned being unable to work but did not specify whether they received government support. Three patients reported that they were still working but had reduced their working hours, without specifying if they received additional government support due to those reduced working hours.
- During the focus group discussions, three patients highlighted the need to temporarily stop working or retire while undergoing diagnosis or treatment.

For more information about patients' experience consulting physicians and various specialists while seeking an AL amyloidosis diagnosis, refer to the MPE report on AL amyloidosis diagnosis experiences in Europe.

> **"I didn't have a diagnosis so I couldn't get the sick leave. For three years I had vomiting, pain in the arms. Of course, since there was no diagnosis, I had no sick leave. So, I had to continue working with tremendous pain in my arms and legs."**
>
> AL AMYLOIDOSIS PATIENT

AL amyloidosis patients who participated in the survey and joined the focus groups shared insights regarding the relationship between receiving an AL amyloidosis diagnosis and other illnesses, particularly myeloma.

In the survey, four patients reported that their AL amyloidosis diagnosis coincided with their myeloma diagnosis. In contrast, one patient mentioned that their myeloma diagnosis preceded their AL amyloidosis diagnosis (as shown in Table 2).

Patients in the focus groups explained that a simultaneous myeloma diagnosis often facilitated the diagnosis of AL amyloidosis, as both conditions were treated by the same specialists, such as haemato-oncologists. During focus group discussions, eight patients disclosed receiving diagnoses related to organ dysfunction, such as heart, kidney, lung, or multiple organ failure, while they were in the process of seeking their AL amyloidosis diagnosis. Although it remains uncertain whether these diagnoses were directly caused by AL amyloidosis, they are commonly associated with AL amyloidosis due to the impact of the disease on the body (Myeloma UK, 2018; Bou Zerdan M, et al, 2023).

Patients described variations in the mode and type of information provided to them while seeking a diagnosis:

- **Communication mode:** in the focus groups, ten patients mentioned that their physicians verbally confirmed their diagnosis of AL amyloidosis and provided information about the condition. They did not mention receiving written materials, like pamphlets or brochures. One patient mentioned seeking additional information beyond what their physician provided, but did not specify the source. Two patients noted that a nurse offered information about available treatments and their potential side effects.
- **Content communicated:** Six patients in the focus groups described the information their physicians shared regarding AL amyloidosis. This included data about survival rates and some treatment details. One patient mentioned that their physician discussed the overall treatment process, such as treatment cycles, but did not delve into specifics about the medications involved. In one focus group, a patient expressed a preference for their physician taking the lead in treatment decisions, with the expectation that the patient would be informed about available options. Two other patients in a focus group mentioned receiving information about the details of their treatment, but side effects were not discussed. In another focus group, patients talked about limited communication with healthcare providers and having few opportunities to participate in their treatment decision-making.
- **Seeking information independently:** Irrespective of the information received from healthcare providers, eight patients mentioned during focus group discussions that they proactively sought additional information on their own. They typically turned to the internet or conducted social media searches to gather background information about AL amyloidosis, its treatment options and the progression of the disease.

> **"The doctors tell you what the treatment process is and the possibility of survival. They did not explain the details of the treatment method. You don't ask out of shock. You start thinking later. We received the information at a medical facility. Information from the internet was not helpful. You simply follow the procedures. It is difficult to say whether there was too little or enough information. But I would like more information. I would like one opinion, more consistency"**
>
> AL AMYLOIDOSIS PATIENT

Among the respondents, only a few (five patients) expressed satisfaction with the information provided to them. However, many patients in the focus groups described how they continued to learn more about their condition from various sources after initially receiving a diagnosis. For instance, patients mentioned that members of their healthcare team, such as physicians or nurses (five patients), or social workers (three patients), offered them additional information about the disease and connected them with patient support groups. A total of 12 patients discussed receiving information about the disease from patient support groups, which proved helpful in understanding their AL amyloidosis diagnosis.

Additionally, two patients from the focus groups shared their experiences of being connected with people who were already living with AL amyloidosis. These experienced patients provided valuable insights for the newly diagnosed patients, including recommendations for top specialists and hospitals for AL amyloidosis treatment, as well as a personal contact for information. Unfortunately, one patient mentioned they did not feel welcome in their patient support group due to internal politics carrying over into the group discussions and chats.

> **"I was doing a lot of research as to how this thing is treated, what are the options, and so on and so forth. And I'm [now] able to conduct an intelligent conversation with my haematologist or my cardiologist about the treatment, which I find very helpful."**
>
> AL AMYLOIDOSIS PATIENT

During the focus group discussions, patients described receiving assistance with care coordination, such as filling out forms, appointment scheduling and organisation, and accessing other supportive services (e.g., psychological support).

COPING WITH AN AL AMYLOIDOSIS DIAGNOSIS

When asked about the most impactful change in life after their AL amyloidosis diagnosis, respondents gave a number of answers, including stopping work, increased fatigue, decreased physical activities and dependence on others. However, survey respondents also cited being relieved after receiving a diagnosis, and stress and uncertainty about living with the disease. A common theme among patients in the focus groups was the necessity to confront and accept their diagnosis. During these focus group discussions, seven patients highlighted their need to adapt to the news of their diagnosis. One patient spoke about the importance of "surrendering to the facts of the disease", while another discussed their need to hear information about the disease from various sources multiple times before fully acknowledging their AL amyloidosis diagnosis. Additionally, one patient in the focus groups emphasised the importance of maintaining optimism in the face of their diagnosis.

> **"Acceptance is hard. It takes a few weeks to realise what it is…what the doctors are telling you. You don't know anything about this disease… [it] is not very "popular" and there's not a lot of information, the faces that the doctors make when they have the results are not very good ones. The first thing to do is [get used to the medicine] and assimilate what [the doctors] are telling you."**
>
> AL AMYLOIDOSIS PATIENT

Many patients emphasised the significance of the support they received from their family and friends. Additionally, patient support groups were frequently cited as valuable sources of both information and a "safe place" for people dealing with AL amyloidosis. One patient underscored the importance of "patient-to-patient" support, which involved connecting directly with another AL amyloidosis patient. This connection was instrumental in raising awareness about the best specialists and hospitals for AL amyloidosis treatment in a particular region, while also providing the invaluable benefit of having someone who truly understood the experience of being diagnosed with and living with AL amyloidosis. This "patient-to-patient" connection was typically facilitated through a patient support group, and the patient explained that this connection had a profound impact during the early stages of their diagnosis and treatment.

> **"...at the hospital, I wasn't provided with any information. After a couple of treatments, I said to one of the nurses that I felt really frustrated because I had no one to talk to about my illness. She said to contact the [local myeloma foundation], which I did and they pointed me to a Facebook group, which I'm now a member of. I've become very heavily involved with the patient organisation and we've just produced a pamphlet, which will be provided to hospitals and also online for newly diagnosed patients. It has information about the illness and also different contact information, details about the patient group, etc. But I found it incredibly frustrating that nobody gave me any information about anything. I really had to keep asking and it wasn't until I found this Facebook group that I started getting in contact with other patients and met a couple of them."**
>
> AL AMYLOIDOSIS PATIENT

Patients in the focus groups also stated they felt more comfortable with their care team when they were prescribed the same or similar treatment regimen as those described by other patients in their support group. Three patients in the focus groups mentioned that they didn't have access to an AL amyloidosis-specific support group. Instead, they found the myeloma support group in their local areas to be a valuable resource in alleviating feelings of isolation. One of these patients explained that she became connected to her local myeloma group through the hospital where she was receiving treatment. After attending a group meeting, she met an amyloidosis patient who then introduced her to the local amyloidosis support group. Although AL amyloidosis is not as common as myeloma, patients in these discussions recognised and valued the support and connections provided by the myeloma groups.

> **"...before I knew exactly what I had... I reached out to the myeloma group because the hospital refers people to them. So I went to one of their meetings and then I talked to a lady who has since passed away, and she said, 'well, if you have amyloidosis you should speak to Person XX. "**
>
> AL AMYLOIDOSIS PATIENT

NEED AND USE OF SUPPORTIVE SERVICES

The tone and emphasis of survey participants and focus groups varied, too. Survey respondents typically expressed their feelings and emotions, while participants in the focus groups tended to provide more practical and clinical feedback when addressing how they coped with their diagnosis and the effects it had on their own lives and their loved ones' lives.

Psychological support

Patient experiences differed regarding the need and use of psychological support services and benefits. Some patients in the focus groups did not find psychological support needed or helpful, or refused the service altogether (n=3); one of these patients recognised that one day psychological support may be required to help cope, but at the time of the focus group, it wasn't necessary. Two patients in focus groups saw psychologists or counsellors as an essential part of their care team. One patient thought psychological support while hospitalised was required to help calm a "running mind." The same patient said it was difficult when psychological support was no longer available after they were discharged from hospital. Another patient in the focus groups described initially refusing psychological support during hospitalisation, while admitting they weren't at their best and didn't want a psychologist, but later accepted it and began "recognising myself again." In a different focus group, one patient described their inability to access psycho-oncology support because they did not have cancer, despite receiving care in a cancer centre.

> **"I came out of this whole process flat, I couldn't laugh, I couldn't cry, I didn't have feelings, I was completely flat. But once I started going to the psychologist, I started recognising myself again."**
>
> AL AMYLOIDOSIS PATIENT

Within the focus groups, four patients expressed a sense of isolation and difficulty in seeking help because they appeared healthy on the outside. Another patient found it challenging to ask for assistance due to their lack of understanding about their diagnosis and treatment.

Feelings of being a burden on society, family and friends

In a specific focus group, three patients expressed concerns about receiving government support throughout their diagnosis and treatment, including additional disability or sick leave, or any services beyond medical care (n=4). Consequently, these patients described navigating the diagnostic and treatment processes on their own without the additional support available in other countries. Among those patients,

three mentioned needing to figure everything out themselves amid "bureaucracy around status and financial support." One of these three patients stated their patient support group helped a lot.

> **" I don't know really what the solution is. As my dependence on my partner increases because of my health state, all that he has to bear has increased to, let's say, unacceptable proportions, both on a physical and emotional level... he is dealing with this stress both emotionally and also in terms of his physical workload.**
>
> AL AMYLOIDOSIS PATIENT

Patients emphasised the importance of support, particularly from their families (seven patients), as well as support from their workplaces or bosses (five patients). In one case, a focus group participant described their boss as the source of encouragement that led them to seek a diagnosis due to the initial signs and symptoms of the disease.

> **"[returning to work after autologous transplant] before, my work was face-to-face in the office, now there is one day that I work in the office and another day that I work at home...I have felt the support from my bosses..."**
>
> AL AMYLOIDOSIS PATIENT

QUALITY OF LIFE IMPACT FROM DIAGNOSIS

In the survey, patients discussed the challenges they faced during their diagnosis, which often involved making decisions about adjusting their daily routines. Specifically:

- Seven patients had to decide whether to reduce their workload or the time they spent on hobbies.
- Six patients mentioned family-related matters, such as reducing their responsibilities in daily life and seeking assistance from family members.

Additionally, one survey respondent mentioned experiencing increased stress when informing friends and family about their AL amyloidosis diagnosis. In the focus groups, three patients discussed the added financial burden of travel costs for their care visits and treatments.

> **"When the children grow up, you think you will have more time for yourself. It was difficult for me to accept [the AL amyloidosis diagnosis], because then financial problems began to accumulate. I used to go to work and was not dependent on my family [before]."**
>
> AL AMYLOIDOSIS PATIENT

Two survey respondents shared that the diagnosis had a profound impact on every aspect of their lives, leaving them feeling overwhelmed by the need to make various decisions. One respondent explained that they had to postpone elective knee surgery to assess how they would feel after treatment and determine whether their post-treatment prognosis would allow for elective medical procedures.

The responses from the focus group discussions were in line with the survey results. However, it was common for patients not to differentiate between their quality of life at the time of diagnosis and their quality of life during treatment in their conversations.

In the focus groups, patients mentioned various aspects affecting their quality of life:

- One patient expressed missing the simple pleasure of having a glass of wine at the weekend.
- Three patients talked about missing out on exercise due to feelings of weakness or reduced mobility.
- A patient in one of the focus groups shared that their diagnosis had compelled them to make significant compromises in their life due to feeling weak and limited in their ability to engage in physical activities.

> **"When I was first diagnosed and I had active disease, I felt a lot better, physically. Now I feel totally run down, very weak and I'm a lot more limited on the physical activity that I'm capable of..."**
>
> AL AMYLOIDOSIS PATIENT

Mental health

In the focus group discussions, several patients focused on the mental health impacts of AL amyloidosis:

- One patient mentioned that their treatment schedule disrupted their weekend sleep, leading to feelings of depression, despite considering themselves a generally positive person.
- Another patient associated depression with weight gain and water retention; this was ultimately linked to entering menopause, which was triggered upon starting AL amyloidosis treatment.
- A different patient described their tendency to withdraw and not want to engage in discussions about their diagnosis or disease with others, as it was emotionally draining. They mentioned finding valuable support from a neighbour who had myeloma, with whom they could discuss treatments and disease status.

Additionally, other concepts related to the mental health of patients in the focus groups included:

- Fears related to remission, with one patient expressing anxiety about the lack of regular appointments or check-ins with physicians during remission. After experiencing a rigorous schedule of appointments and treatments around the time of their diagnosis, this patient found it unsettling not to be in close contact with their care team.
- A general acceptance of their "new" life, which was mentioned by four patients.

QUALITY OF LIFE IMPACT ON AL AMYLOIDOSIS PATIENTS' LIVES

WHAT LIVING WITH AL AMYLOIDOSIS MEANS TO PATIENTS

Among the patients who participated in the survey, two common themes emerged:

- Uncertainty: Five patients expressed that living with AL amyloidosis introduced a pervasive sense of uncertainty into their lives. This uncertainty stemmed from the disease itself and the possibility of a shorter life.
- Perceived limitations on daily activities: Seven patients felt that their lives were constrained by AL amyloidosis. Specifically, survey respondents mentioned a reduction in time available for hobbies, travel and social activities. One survey respondent conveyed feeling limited in every aspect of their life due to AL amyloidosis.

However, two patients held a more optimistic perspective, focusing on learning from and reflecting on their journey with AL amyloidosis.

Within the focus groups, the following topics emerged:

- Four patients emphasised their goal of leading a normal life despite their condition.
- Three patients acknowledged that, as physical activity became more challenging, they had adjusted their exercise routines or expectations, such as transitioning from daily workouts to once-a-week sessions.
- Four patients anticipated changes in their lives, initially experiencing grief before ultimately accepting the disease.

- One patient expressed caution about relying on elderly parents for transportation to appointments but found a free ride service for treatments, which helped enhance their sense of independence in the face of their diagnosis.

ADJUSTING TO LIFE WITH AL AMYLOIDOSIS

In the survey, seven patients mentioned that it took them several years to adapt to living with AL amyloidosis. Five patients indicated that they had adjusted to their lives with the condition, although they still faced certain limitations (e.g., weakness, walking slowly, reduced activity, not able to keep up with children). Additionally, four survey respondents expressed that they were either anticipating the return or worsening of AL amyloidosis, working on making necessary adjustments, or finding it difficult to adapt.

> **"I think you start living from day to day, because everything progresses so much that if you're lucky it's good, but everything can change very quickly."**
>
> AL AMYLOIDOSIS PATIENT

During the focus group discussions, patients voiced frustrations about the challenges of adhering to their treatment and medication schedules, recognising that these regimens were long-term commitments, possibly extending for the rest of their lives. Two patients shared their fears about experiencing a decline in their condition, even in the face of recent improvements. One patient expressed that they had recently come to the realisation that their lifespan might be limited to the next ten years, describing it as a new and unwelcome feeling.

IMPACT OF SYMPTOMS ON PERSONAL AND PROFESSIONAL LIFE

Patients who participated in the survey recognised that their work and personal lives underwent significant changes as a result of their AL amyloidosis diagnosis. When asked about the overall impact of AL amyloidosis on their professional lives:

- Eight patients either stopped working or reduced their work commitments following their diagnosis.
- Three patients had to take medical leave.
- One patient had to transition to less physically demanding work.

In terms of personal life impacts:

- Nine patients mentioned that they had to stop or reduce their involvement in hobbies.

- Six patients reported that they had to slow down or become less engaged in their daily activities.
- Four patients limited their social interactions due to concerns about infection. On the flip side, some did not want to reduce their social interactions.
- One patient expressed their inability to adequately care for themselves and their family members.

> **"I already assume that I am immunocompromised and that if I go to see my grandkids, I will come down with something. And what are we going to do? The concept of life also changes with this. Now I live life day by day, and I accept death as something natural."**
>
> AL AMYLOIDOSIS PATIENT

Similar themes emerged in the focus groups. Group discussion centred on:

- Joint pain that resulted in an inability to exercise (five patients) and an increased need for dependence on friends and family.
- Reducing, giving up, or compromising on hobbies, sports and other daily activities (six patients), including work responsibilities (three patients).
- Patients reported an increased fear of infection due to Covid, which led to restrictions on social settings and support.

Patients mentioned that they strive to maintain a sense of normalcy in their lives but still grapple with daily impacts, which include:

- Weight fluctuations (three patients).
- Stomach or digestive issues, including new food and drink intolerances or changing preferences for food and drink (two patients).
- Managing supportive medications (two patients)

PATIENT TREATMENT EXPERIENCES

EXPERIENCE AND PERCEPTIONS OF SIDE EFFECTS[1]

Current treatments, as shared by survey participants, are listed in Table 2.

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[1] Please note, due to survey and focus group anonymisation we are unable to determine if the same patients responded to a question on the survey and focus group discussion in the same manner. These results suggest direction of an impact verses an additive magnitude for a specific characteristic, quality, or statement.

Most of the survey participants (11 patients) and focus group participants had experience with daratumumab as a treatment for AL amyloidosis. Focus group participants discussed different ways daratumumab is administered, its availability, and the variations based on geography and cost. Many patients highlighted the considerable expense associated with the treatment but expressed positive views regarding the convenience of subcutaneous administration compared to intravenous administration.

Across most focus groups, patients generally viewed organ and stem cell transplants (nine patients) as potential treatments for AL amyloidosis but not as definitive cures.

Focus group participants shared their common experiences with side effects of current AL amyloidosis treatments, which included the following. Please note that these side effects are not specific to any single treatment.

- Fatigue, tiredness and weakness (17 patients).
- Loss or alteration of taste (five patients).
- Development of cataracts and vision loss (four patients).
- Neuropathy and tingling sensations in the feet or hands (six patients).
- Dizziness (three patients).
- Constipation (three patients).
- Swelling (three patients).

Five patients who participated in the survey and an additional five patients in the focus groups reported experiencing little to no limitations as a result of their treatments. Due to study anonymisation, it's unclear whether these are the same patients mentioned in both groups.

"Those are the facts of life - of living, for me - the side effects of the treatments have been very, very debilitating, but really nothing much can be done about that and [there are] not a lot of options. So, the treatment has definitely had a serious negative effect on [the] things I took for granted."

AL AMYLOIDOSIS PATIENT

PATIENTS' DESIRED AND UNDESIRED TREATMENT CHARACTERISTICS[2]

Patients were asked in the survey to outline the potential risks or undesirable effects they would consider when starting a new treatment. The following side effects were identified as significant factors that would cause hesitancy or doubt when contemplating a new treatment:

- Severe nausea.
- Vomiting or gastrointestinal distress.
- Headaches.
- Hair loss.
- Skin problems or itchiness.
- Mental decline.

When asked about the side effects they would be willing to tolerate in order to continue an effective treatment, focus groups participants shared the following sentiments:

- Some were willing to endure nearly any side effect if it was temporary (five patients).
- Maintaining their quality of life and mobility was of utmost importance (five patients).
- It was emphasised that any form of transplant was not considered as a treatment (two patients), with one patient adding that transplants should be considered only for patients diagnosed at a young age.

Patients in focus groups echoed these concepts, but five patients mentioned they would be willing to endure any side effects if they were assured of a cure. Of these five patients, three specified that they would accept any side effect if it was known to be temporary. Additionally, five patients expressed a strong desire to maintain their quality of life, with two patients emphasising that their quality of life was the most crucial consideration for treatment.

Survey respondents highlighted the importance of experiencing improved laboratory results (three patients) and a reduction in the burden of symptoms (five patients)

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[2] Please note, due to survey and focus group anonymization we are unable to determine if the same patients responded to a question on the survey and focus group discussion in the same manner. These results suggest direction of an impact verses an additive magnitude for a specific characteristic, quality, or statement.

as significant outcomes offered by treatment. Patients in focus groups shared similar sentiments and stressed the importance of the specific lab tests ordered by their physicians.

OPTIMISM ABOUT FUTURE TREATMENTS BUT CONFUSION AROUND CLINICAL TRIALS

Patients described feeling hopeful about the possibility of better treatments for their disease. They were pleased about increasing investment and encouraged by the accelerating pace of research into AL amyloidosis. Overall, they held a positive outlook on the potential for advancing treatment options. In one focus group, patients discussed rapid changes in the research for treatments for AL amyloidosis. In particular, they noted that improved treatments "bought" them time until the next medical advancement.

> **"[I think that] it will soon be like HIV, HIV AIDS, there will be a pill with a treatment… and you will be able to take it at home and that's it."**
>
> AL AMYLOIDOSIS PATIENT

However, feelings of frustration and confusion about clinical trial eligibility emerged. For example, in one focus group, patients described being upset that they were not informed about a particular clinical trial. Once they were told only AL amyloidosis patients with specific characteristics (e.g., newly diagnosed patients initiating treatment, or patients with specific organ system involvement, like heart or kidney) were eligible for a given clinical trial, they were comforted since they did not have that disease characteristic. This discussion highlighted misunderstandings among focus group participants about certain aspects of clinical trials, such as eligibility criteria.

Another patient delayed AL amyloidosis treatment by more than a month trying to determine eligibility for a trial. First, biopsy samples were sent abroad for a specific test that was not available in the country of the patient. Then, samples were lost for a while and later revealed to be insufficient for testing. The patient then travelled to another country to be tested again for trial inclusion, but ultimately was excluded from the trial due to inconclusive test results.

UNMET NEEDS AND OPPORTUNITIES TO IMPROVE PATIENTS' LIVES

When survey respondents were asked about what would improve their lives, six patients provided suggestions to enhance their treatment experiences. These suggestions included:

- Clinical trials at their local treating hospital

- Receiving treatment closer to their home
- The availability of daratumumab in pill form
- Reducing medication burden
- Kidney transplant
- Reducing symptom and side effect burden

Other respondents shared the following aspirations to improve their lives:

- The ability to resume hobbies (four patients).
- Regaining their previous physical stamina and energy levels (two patients).
- The ability to relax (two patients).

In addition, survey responses highlighted financial concerns that patients have. For example, certain patients highlighted that reducing costs by decreasing what patients pay out-of-pocket for medications (three patients) would be helpful. Others suggested increasing their disability allowance (one patient) or finding a job with better pay (one patient) would make it significantly easier to afford treatment. Finally, another patient described that their current job covers their insurance, which makes it challenging for them to leave for a new job.

> **"[My] medication is financed by my medical insurance and I'm afraid that they will stop paying at some point."**
>
> AL AMYLOIDOSIS PATIENT

During discussions about unmet needs, patients expressed their frustration and identified opportunities to improve health system experiences. Specifically, patients described the need for better coordination of care and improved communication. Four patients in the focus group discussed the importance of care coordination and seamless communication with AL amyloidosis providers. The main themes that emerged were:

- A preference for working more closely with their family physician to facilitate communication.
- A desire for healthcare providers who displayed genuine interest and concern for the patient.
- A desire for a unified protocol that spans across specialties, making it easier for providers to share information and improve communication (mentioned by three patients).
- One patient expressed a desire for a dedicated "hotline" for general AL amyloidosis-related inquiries.

Patients raised other concerns with current experiences. While some could be addressed through updated clinical practice guidelines or education, others are more challenging to address. Feedback included:

- Delays in receiving a diagnosis (mentioned by four patients).
- Insufficient appointments when in remission or a maintenance setting (mentioned by four patients).
- The lack of available clinical trials and specialists (mentioned by four patients).
- The need for easily accessible AL amyloidosis-specific information, patient groups and research studies with relevant outcomes (mentioned by two patients). They also pointed out a lack of effective programs by amyloidosis groups.

> **"The biggest problem that I see in amyloidosis is how long the diagnosis takes. I have a friend from high school - it took him three and a half years to identify the amyloidosis. Three and a half years…so the problem is how to identify early enough that you have this disease. Because of the late diagnosis [my friend] lost his kidneys."**
>
> AL AMYLOIDOSIS PATIENT

Patients were open to travelling to larger, more experienced facilities for specialised treatment, but they also expressed a desire to maintain certain aspects of their care, locally, such as with their general practitioner.

> **"We are always looking for the best specialist in the world in our disease and if possible, you try to move heaven and earth to get to them."**
>
> AL AMYLOIDOSIS PATIENT

Survey responses and focus group discussions aligned in highlighting the overlap between unmet needs and desired improvements in the healthcare system and support mechanisms. Focus group discussions on needs also revolved around support, with several key points:

- Three patients highlighted the need for more psychological support and greater support for caregivers.
- Some patients found stronger identification with the myeloma community, including participation in support groups.
- Mobility and the ability to resume physical activities were crucial for participants' quality of life. One patient mentioned the desire for subsidised "gentle exercise" programs, such as yoga and Pilates, which could also aid in symptom management.

CONCLUSION

Patients living with AL amyloidosis, who responded to the survey and participated in the focus groups, were very knowledgeable about their condition and were resilient. AL amyloidosis is complex and affects many parts of the body, which means patients are treated by multiple specialists, sometimes at different facilities.

Receiving a diagnosis of AL amyloidosis can make people feel as if they have lost control and have uncertainty about the future. Despite this, many patients said they have faced their diagnosis and adapted to it. Over time, they started to feel hopeful about future treatments and making their lives better. They desire better coordination across their healthcare team, along with better communication channels with members of their care team.

Most importantly, AL amyloidosis patients want to get back to their lives before the diagnosis. They value a high quality of life, which includes spending time with family and friends, being able to do their hobbies, and having the physical health to exercise and move about.

AL AMYLOIDOSIS CALL TO ACTION

The survey and focus groups have shown us the important needs of patients, particularly those related to the diagnosis, treatment and research of AL amyloidosis. In light of these findings, we recommend that patient advocates and patient organisations take the following actions:

☑ **Continue raising awareness around AL amyloidosis**
Ongoing early diagnosis efforts should be pursued with the development of decision-making aides for primary care and related specialists (cardiac and renal) to raise awareness of AL amyloidosis and assist doctors in conducting the relevant tests and investigations, as appropriate. MPE has developed an important tool for dissemination in Europe called the Amyloidosis Diagnosis Pathway. It is a diagnosis tool for general practitioners (GPs) outlining the main types of amyloidosis, the signs and symptoms, and the tests and investigations that should be considered if amyloidosis is suspected. In addition, we recommend that patient organisations support and advocate for continued professional development for GPs and specialists through accredited online learning modules on AL amyloidosis, and for haematologists to present on AL amyloidosis at congresses aimed at GPs and internal medicine specialists.

☑ **Work with MPE and MPE member associations to establish 'core' resources for amyloidosis patients**
Patients shared challenges accessing resources about the diagnosis and treatment of AL amyloidosis. To address this issue, we recommend the creation of a comprehensive

resource directory, organised by European country. This directory should include listings of leading AL amyloidosis specialists and the healthcare facilities where they practice, along with educational materials about disease background, treatments and potential side effects. The directory could also connect patients with support groups and patient advocacy groups. This is especially important since amyloidosis groups are often found within a myeloma group that may or may not have amyloidosis-specific materials, or amyloidosis resources maybe shared only by word-of-mouth.

☑ **Work to establish an AL amyloidosis 'buddy' system**

Focus group participants made it clear that having someone who understands what living with AL amyloidosis is like helped new patients to better understand the disease and not feel so isolated. Some amyloidosis groups appear to have an informal 'buddy' process where a newly diagnosed patient is partnered with a patient who is experienced in living with the disease thus creating a supportive resource. We recommend establishing a formalised 'buddy' system within member associations to help patients communicate with one another.

☑ **Develop or link to publicly available resources about clinical trials**

This project revealed a need for improved patient education regarding clinical trials. To address this, developing educational series (or linking to an existing one) that provides general information about clinical trials to patients seems crucial. Based on our focus group discussions, potential topics for this series might include an introduction to the drug approval process and the role of clinical trials, understanding eligibility criteria and participation, and how to find clinical trials in your area. MPE is currently developing a European myeloma and AL amyloidosis clinical trial search tool, which will include information on clinical research, eligibility and where to find trials. This online search tool should answer the educational needs raised in the present research.

☑ **Work towards or advocate for practice guidelines that have an integrated care approach for amyloidosis patients**

Patients consistently raised concerns about miscommunication among their various healthcare providers and specialists, as well as misunderstandings about treatment approaches by non-amyloidosis specialists. They also found it burdensome to share medical or care information across different providers. We recommend collaborating with professional associations to establish or raise awareness about existing best practices and treatment guidelines. It should aim at streamlining and enhancing communication among the various specialties involved in treating amyloidosis patients.

APPENDICES

- **Appendix 1:** AL Amyloidosis Patient Survey
- **Appendix 2:** AL Amyloidosis Discussion Guide

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