ZIMS

*information on multiple sclerosis*

2016

# First do no harm

# editorial

This magazine is an experiment. It‘s the English edition of our German ZIMS-magazine that we publish twice per annum. The content of this magazine is not an experiment though. What we have to say is solid. The aim of ZIMS is not only to inform about Multiple Sclerosis, but to express a critical patient‘s point of view on a scientific level. The editorial team consists of a former doctor, a psychologist, and a political scientist. Two members of the team were diagnosed with MS many years ago. Just how much fear MS creates, how much bad information is circulated, and how patients are not taken seriously by their caregivers, is not the only part of our own experiences with the disease. We are also part of an independent counseling center for people with MS in Trier/ Germany and hear about these issues from patients and relatives of patients almost every day. For countries where MS medication is available, the problem of profit over people seems to be the same.

So the articles we picked for this English edition cover topics that create fear among MS patients, like not telling them what is known about data on prognosis („Silence is not golden“) or telling them to change their nutrition („Afraid to eat“) or telling patients that the rate of suicides is seven times higher than among other people („Suicide and Multiple Sclerosis“). We also cover two topics that are becoming an important part of life after being diagnosed with MS but that hardly anyone talks about: how MRI scans are supposed to lead to a better treatment of MS but really don‘t („White spots“) and just how many MS patients quit their treatment against medical advice („Can‘t take it any longer“). Keeping information from patients or misinforming them is causing harm. And that is something the Hippocratic Oath, which we quote on the front page, should prevent. We are looking forward to hearing from you, our readers. Let us know your opinion via E-Mail: zims@gpsd-trier.de.

ZIMS editorial staff

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# silence is not golden

## Why old-school prognostic data is important and “real life data” is a fallacy

Whatever information MS patients obtain about their disease, they get the impression that physical decline is unavoidable. Patients and caregivers will both often interpret stable phases during the disease as a result of the treatment, though MS medication available today modifies the natural course of MS only moderately at best. Therefore, it is important to counter this superficial information with some reliable prognostic data, especially because it is not hard to find.

Several population-based MS registries have collected data on untreated MS patients in the past and analyzed this data, taking into account various aspects. It is possible to draw information about prognostics from this data, since it can help estimate probabilities on the different kinds of courses of MS and degrees of disability.
That the data is “population-based” is an important requirement in order to be able to appropriately evaluate data from these registries, since it means that data from the majority of MS patients in a specific geographic area has been obtained. Only by this means it is possible to gain a representative overview of different kinds of courses of disease.

However, the use of this prognostic data is limited by the fact that the data includes only those MS patients who had been diagnosed under conditions no longer valid, meaning without MRI scans but with strict clinical criteria. With the implementation of McDonald’s diagnostic criteria, not only the time of diagnosis is now advanced [1] but also people with little or no MS-symptoms are diagnosed. That is why today’s patients courses of disease with MS treatment cannot be compared directly to the courses of

such older non-treated patient groups. But even with these limitations, taking a look at this prognostic information is worthwhile for both patients and caregivers when making decisions on treatment, though changes made in diagnostic criteria should not be forgotten: firstly, the period of time that passes from diagnosis to developing severe disabilities is much longer nowadays due to earlier diagnostics, no matter if MS is treated or not. Secondly, it is less likely to develop a severe course of MS because, in contrast to the pre-MRI era, even light courses of MS are discovered.

With the help of these registries, other questions can also be answered:

***1. Does every relapsing-remitting MS turn into a secondary progressive MS at some point?***

"More than half of the patients with a relapsing-remitting course will pass over to a course of progressive decline after about 10 years if the MS is untreated" [(2)]. Whoever prepared this information for patients probably thought of it as pure formality, knowing neither the data situation nor the importance of such information for MS patients. It is better take a closer look at this statement. Looking at data from the MS registry in Ontario, Canada, it depicts the cumulative danger of passing over from a remitting course to a progressive course within several decades after diagnosis. [(3)] It shows that about one third of the MS patients will remain in a relapsing-remitting course over a long period of time. And furthermore: the longer a MS patient remains within the relapsing-remitting course from the point of diagnosis onward, the less likely is it is to pass over to a progressive course. The risk was lowered to about 33% after 15 years of relapsing-remitting course and to about 13% after 25 years.

***2. Does physical disability always get worse during the disease or are there improvements as well?***

There is an interesting evaluation on this topic by another Canadian registry in British Columbia. 2961 MS Patients who have had the disease for an average of 10 years were monitored annually, leading to 7653 medical examinations over a number of years. In 53% of the examinations, nothing had changed in terms of disability. In 32.9%, the Expanded Disability Status Scale (EDSS) went up by at least 0.5. In 14.9% of

the examinations, the EDSS scale went down by at least 0.5. [4] Therefore, one can say that improvements do occur within the course of MS.

***3. Does primary progressive MS always lead to severe disabilities?***

The Ontario registry can again be of help regarding this question. Data not only of patients with a secondary progressive MS but also of 219 patients with primary progressive MS was collected.
In a median of 6.4 years they reached an EDSS level of 6, meaning the ability to walk for 100 meters at most with a walking aid. Being newly diagnosed with a primary progressive MS, a patient with no statistical knowledge will conclude that he himself will reach this level of disability in about 6 years. But "median" only means that after 6.4 years half of the patients have reached an EDSS level of at least 6 whereas the other half will have an EDSS level of lower six or six at most. The median is simply a statistical method to show when a certain endpoint (in this case EDSS of 6) is reached by 50% of the group. Much more interesting than the median is the other data, also shown in the publication, that there are patients who reach an EDSS level of 6 in less than 6.4 years but also those who last up to 15, 20 or 25 years.[5]
Unfortunately there is no information on improvements within the natural course.

***4. What happens to a patient with Clinically Isolated Syndrome (CIS)***

Patients with a Clinically Isolated Syndrome (CIS) show neurological symptoms but do not fulfill the MRI-criteria for a MS diagnosis. Criteria for diagnosis today are different to those valid during the time when data was collected for the MS registry, and, since there were no MRI scans, it is impossible to find data of matching patients in retrospect.
This can be overcome by looking at yet another MS registry from Gothenburg, Sweden. Here, patients' data was collected across the whole lifespan, among them 236 with a CIS during the years 1950 and 1964. CIS means that neurological symptoms that show up for the first time but the patient showed no other signs of MS. With today's McDonald criteria, meaning fulfilling MRI-criteria, a lot of these patients would have probably been diagnosed with MS, but it is unknown just how many. 17.8 % of these patients did not develop any other neurological symptoms throughout their lives, meaning no MS. 28.2 % of

patients whose symptoms were sensitivity disorders or optic neuritis did not show any other symptoms during their lifetime. [7]

In order to translate these numbers to numbers for today's CIS patients, one should know that McDonald diagnostic criteria were only introduced to separate CIS patients with high risk of developing a clinically definite MS from those with a low risk. Today, CIS patients are those with a low risk of developing real MS, since all the others are diagnosed with a "McDonald"-MS. Prognosis data for CIS patients of today is surely better than that of the Swedish historical data, although it cannot be estimated precisely.

***Why isn't this data taken into account?***

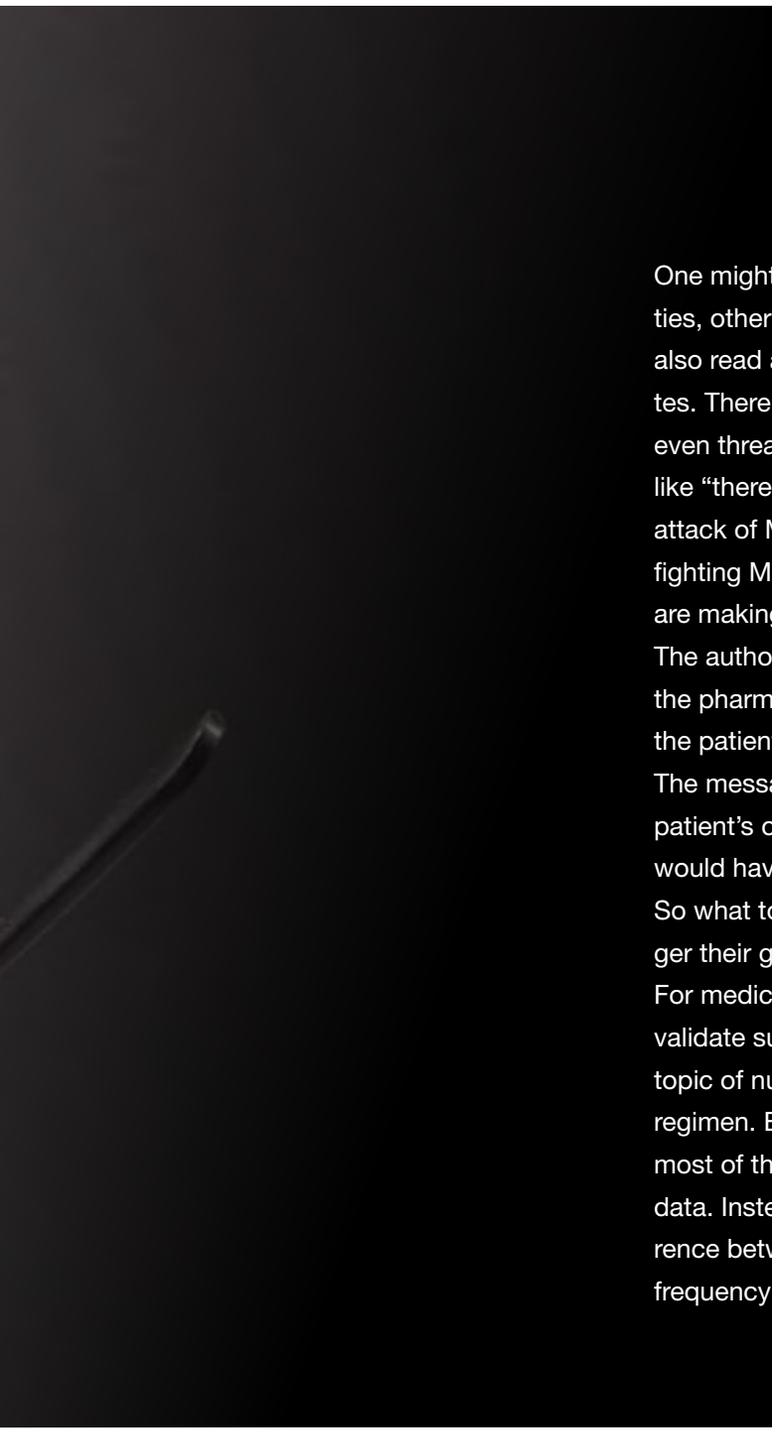
One can only speculate as to an answer to this question. It is striking how MS opinion leaders use a non-scientific, even euphoric, language when talking about the therapeutic benefits of immunotherapy for MS, praising them as "innovative", "modern", "has proven its worth" or as "a new paradigm". And since sometimes talk is on "real life data" [8], that mostly means data taken from registries of MS centers, like "MSBase" [9], which is financed by those 5 pharmaceutical companies involved in MS treatment: Biogen, Genzyme, Merck Serono, Merck and Novartis. These MS center registries do not provide representative data since only single centers are collecting data and there is no control over why patients were treated in these centers. These non-representative registries offer big amounts of highly selective data, and do not include patients who are not treated in these centers due to a good course or a severe disability. With the help of a talented statistician, a "desired" result can be produced, simply because of many analyses and by chance probably at least one of the results will match the preconception and will thus be published.

Neurologists and MS societies who help spread such biased data distort reality and take away the hopes of MS patients to be symptom-free or not disabled too soon, even without treatment. Allowing MS patients to make up their own minds with the help of this old school prognosis data seems now more important than ever.

*Jutta Scheiderbauer*

# afraid to eat

MS patients are constantly urged to change their diet, without reason.



One might hear it from pharmaceutical companies, MS societies, other MS patients or self-proclaimed healers; one might also read about it in magazines, journals, blogs or on websites. There are hints, calls to action, promises and sometimes even threats on the topic of “MS and nutrition”. Proclamations like “there is evidence that the wrong nutrition can fuel a bad attack of MS” or “it is well known that nutrition can be a key to fighting MS” found in articles on websites and in social media are making MS patients uneasy.

The authors of these articles are using the same strategy that the pharmaceutical industry and neurologists use: they put the patients in sole charge of the course of their own disease. The message is the same: if the disease gets worse it is the patient’s own fault. That would not have happened if one would have decided on a treatment/had a change in nutrition. So what to do if others put pressure on MS patients and trigger their guilty conscience?

For medical therapies there is always study data to help invalidate such threats. There are indeed a lot of studies on the topic of nutrition which seem to prove the benefit of a certain regimen. But taking a look into original publications shows that most of the study designs chosen do not provide meaningful data. Instead they retrospectively analyze if there is a difference between diseased and healthy people concerning the frequency of certain risk factors. For example they will ask MS

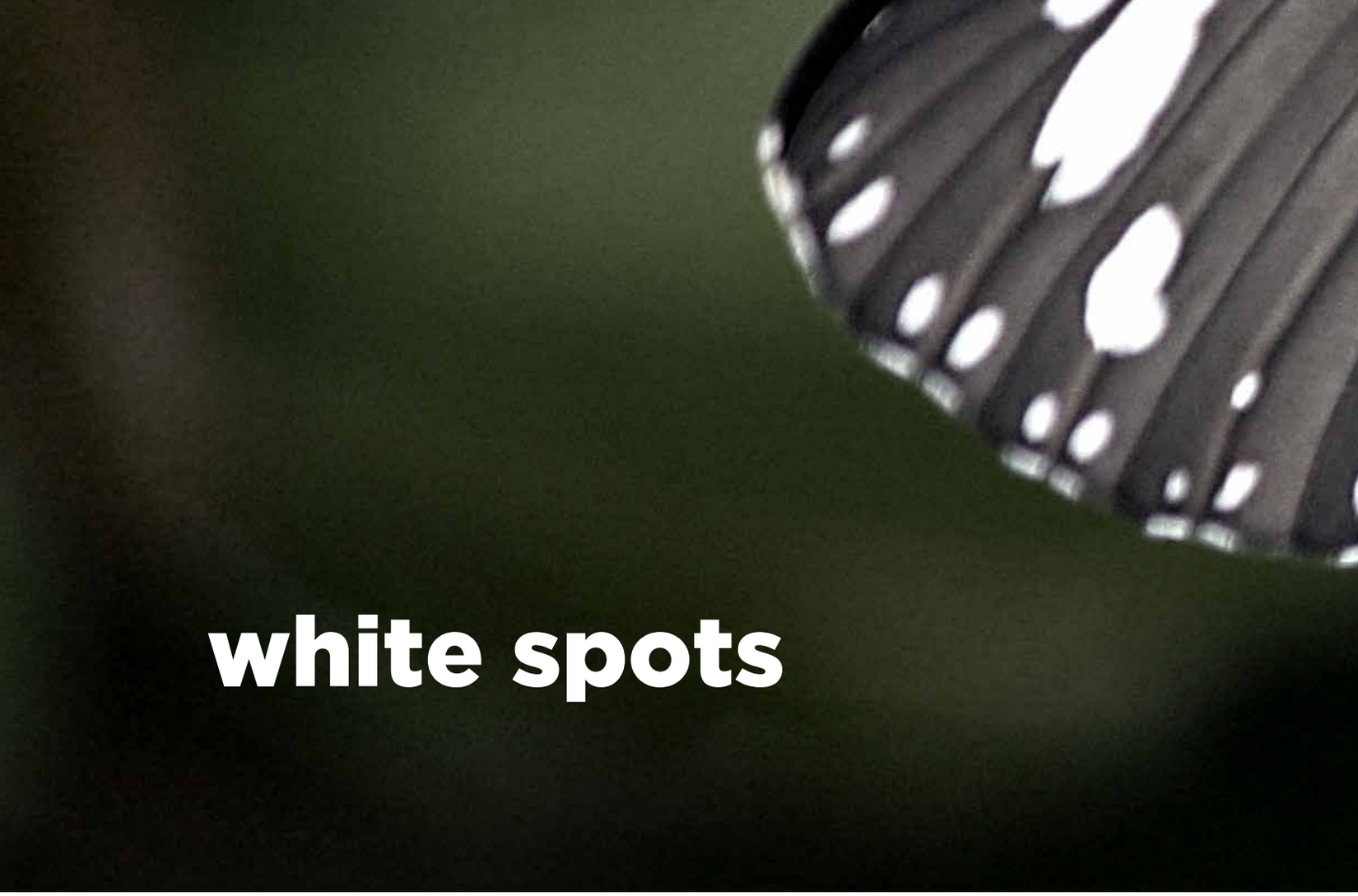
patients about how much milk they were consuming before they were diagnosed ("How many liters of milk did you consume on average within the last three years before MS was diagnosed?"). Obviously, a huge problem with these studies is the recall bias, meaning a cognitive distortion either making it impossible for study participants to correctly remember things in the past or attaching a greater importance to them in retrospect. Thus, if someone believes that animal fat has an impact on the development of MS, he will remember eating meat much more clearly and therefore overestimate his consumption of meat.
Furthermore, the majority of studies on diet cannot prove cause-and-effect relationships, since they are not experimental studies. This is best explained with the help of an example: one study showed that a group of MS patients who were consuming more salt than average (≥2.1 grams per day) had, within 2 years, either developed more T2-lesions or lesions were growing. Above that, these patients had more flares than the group that was consuming less salt. At first glance it seems as if salt is bad for MS patients. But this may be not true at all, since the results do not tell us about how the analyzed factors are connected. We do not know if the increased frequency of flares is connected to an increased consumption of salt or if patients with a poor course of disease consume more salt in general. It is known that patients with a poor course of disease have less energy to prepare meals and will have convenient food more often. Both factors could be attributed to a third variable, a higher perception of stress, for example. Both variables not having an impact on each other is also possible. A good example of such a "spurious correlation" is a statistically high significance of birthrate and number of storks in Germany, that is, the more storks there are in a specific geographical area, the more children are born.

According to current evidence, the benefit of a change of nutrition or new diet for MS is hardly verifiable, if at all. Nutritional Sciences have shown multiple times that having a bad conscience is not necessary and might even be harmful. The WHO once warned people to avoid a high intake of salt since it can increase blood pressure and the risk of a lethal stroke and coronary heart disease. A large study in Belgium showed the contrary was true. Those patients with the least amount of sodium in their urine had a significantly higher risk of dying from the effects of a coronary heart disease. So is a change of nutrition not worth trying? Are all those tips and advice just hot

air? Unfortunately there is no easy answer to that question. As in every other option of therapy, it is useful to balance benefit, risk and costs. Nobody can tell if a patient will benefit from a change to this or that diet because a reliable database does not exist and because physical and psychological conditions can vary so much from person to person.

Diet Science has shown that no diet will work out the same for all people. Benefit from a diet also depends on the fact that other goals like weight loss, bodybuilding and/ or treatment of other diseases can be achieved. Before starting a new diet one should get precise information on the side effects that can occur. For example a ketogenic diet, that is avoiding carbs, can lead to digestion problems, especially in the beginning of the diet, drowsiness and mental stress but can also lead to bone resorption, kidney stones, frequent infections and disorders of blood coagulation, as well as cardiac arrhythmia and metabolic disorders, both of which are life-threatening. Abstaining from conventional wheat can have negative effects, too. This was analyzed in patients with Coeliac disease who showed nutrient deficiencies and an increase of infections.
A change of nutrition can also lead to higher costs, meaning material costs like expenses for food or purchase of special equipment for cooking. But also meaning immaterial costs like investing time on cooking, shopping for goods, making up nutrition plans, weighing foods, counting calories and/or nutrients.
A change of nutrition also takes up extra energy: energy needed to learn new methods of preparation, to make basic food like bread, to not attend their needs and so on. Depending on the sort of diet, conflicts can arise for example when one cannot join in meals at restaurants or family gatherings or if other people are affected by that change of diet simply because they share the same household.
The most important question to ask yourself is: has my quality of life improved? Do I feel better, fitter, less tired? Or is it that the change is frustrating, a waste of time and energy I would rather use for something else? Would those restrictions limit my quality of life in a way that there is no sense in trying?
Only MS patients can find answers to these questions since only they know what is doing them good. Anyone who cannot accept this should ask himself why he thinks he knows others better than they know themselves.

*Christiane Jung*



# white spots

MRI scans are part of clinical routine for MS patients. How does MRI work, what does it show and do those scans really lead to better treatment?

Since the beginning of the 1980s, magnetic resonance imaging (MRI) has been part of clinical routine for MS patients. Neurologists looking at those MRI scans will usually find lesions in the brain of MS patients and often confuse these with permanent brain damage. MS can be very well visualized by using MRI. But with increasing use of MRI, it has become obvious that these scans do not correlate well with the neurological conditions of the patients. A high number of lesions does not automatically lead to neurological disability, nor can every disability be traced back to findings in MRI scans.  This is called the “MRI-paradox”. [1]

**How does MRI work?**

MRI is an imaging method that uses a strong magnetic field to create images of the inside of the body, a purely physical method. As a result of many technical variations, it has become possible to distinguish various types of tissue, differentiate pathological tissue from healthy tissue, identify blood vessels, tell apart tumors from inflammations or vascular disorders, and so on. Using a contrast agent during MRI can provide information, though limited, on biological changes such as a leaky blood-brain-barrier or disturbances of blood circulation.

The mechanism that creates the contrast in the MRI images is based on the magnetic properties of protons which can be found in tissue water. That means an MRI scan is basically like a water map of the brain. But despite the technical subtleties, the fact remains that an image is created by physical means that does not allow tracing the biological meaning of the image. [1, 3] Let us take a look at how this problem is usually solved for tumor diseases: MRI scans are done before and after a tumor has been surgically removed or at least biopsied, to help with the diagnosis. However, this is out of the question for MS patients, since both a surgery and a biopsy do not have a therapeutic effect and are too risky to be used only for means of diagnostics. And since volunteer studies have, rightly, never been considered due to ethical reasons, only few samples of tissue from lesion biopsies exist. Those few had been obtained to rule out brain tumors or have been taken during autopsies.

**The picture of MS on MRI scans**

The term “multiple sclerosis” translates to something like “multiple hardening”. It was coined in a period of time when science only knew the clinical picture of MS and the appearance and consistency of brain tissue of deceased MS patients. Among these lesions were some that had a harder texture than the rest of the brain tissue which was, apparently, undamaged. In these cases, the deceased had had the disease for many years and had been severely disabled, which is why a lot of old and “sclerotic” lesions could be found in their brains. This hardening had been caused by a proliferation of glial cells, also known as supporting cells of the brain, which had replaced not only the myelin, the insulating layer of the nerves, but had also replaced the nerve cells. Previous autopsies also proved that there had been courses of MS with no clinical symptoms at all, since some of the deceased with typical MS lesions had not been diagnosed with MS during their lifetimes. Later on, when more was known about the inflammatory processes that are prominent with the relapsing-remitting MS, especially at the beginning of the disease, it was called “encephalomyelitis disseminata”. But both of these names neglect the characteristics that determine disability, which are demyelination, meaning the loss of the insulating layers of the nerves and neurodegeneration, meaning the loss of nerve cells. [2]

**On lesions**

It is hard to find information on what a MS-lesion shown on a MRI scan really does consist of. Different examination techniques offer different kinds of information: about the location of the lesion, if it is a new lesion or an older one and if a brain atrophy is present. Newer techniques can show effects which can help trace down demyelination and neuronal cell death within the lesion but also within the apparently inconspicuous brain tissue. Some techniques can help prove the existence of lesions within the grey matter, others can make the blood vessel which is supposed to be present within every MS-lesion visible.

There is no doubt that, with the help of all these MRI techniques, diagnosing MS has become much more precise and happens earlier, and even light forms of MS can be identified. But that does not mean that all these MS patients’ lesions are demyelinations that lead to neuronal cell death or are relevant for prognostics at all. [5] For the majority of symptom-free lesions that have been discovered on a routine MRI, it was never pathologically examined what was behind this. And, more seriously, it is unknown what lies behind the brain tissue that showed no clinical signs. Especially MS patients with a progressive course who also show a progression in disability often have “steady” MRI scans. Though today much more is known about the pathogenesis of the origin of a progressive MS, no imaging method to show and follow this cascade in changes at the cellular level exists. [4]

Lesions enhanced with contrast agent are usually referred to as “fresh” or “acute”. But in fact, all we know about this contrast agent enhancement is that the blood-brain-barrier is disturbed, a reason for or consequence of an inflammatory reaction in the brain but no unique proof of a severe damage on this spot.

**Blood-brain-barrier, contrast agent and cortisone**

The main function of the blood-brain-barrier is, among others, to precisely separate the blood milieu from the milieu of the central nerve system, since nerve impulse transmission is based on ions flowing easily through the smallest channel of the nerve cell membrane. If they collide with blood milieu, things get mixed up and impulse transmission stops. Inflammations usually come with an increase of retention of fluid, also called edema, which can also disturb impulse transmission. If lesions that show a disturbed blood-brain-barrier are set in an important part of the brain, neurological symptoms can occur.

Most MS patients who have been given high doses of cortisone will notice that at least some

of these neurological symptoms will soon normalize. That is because demyelination was not reason for these neurological symptoms but rather the disturbance of the brain milieu, as described above. Cortisone has decongestant effects on edema and can help close the blood-brain-barrier very fast, whereas repair work by the body after demyelination can take weeks or months.

Contrast agent-enhanced lesions that do not trigger symptoms have not been shown to increase the possibility of developing a physical disability in the long term. “Old” and non-enhancing lesions are simply spots with a different structure than the rest of the surrounding brain tissue. Though they can be an expression of a so called “gliosis”, meaning an accumulation of glial cells in the brain, often referred to as “scar” tissue, but that does not necessarily mean loss of myelin or nerval cells [1, 6].

**What does that mean in terms of treatment decision?**
These days neuroimmunolgists aim towards absolute freedom from any kind of disease activity. This treatment objective is called NEDA, short for “no evidence of disease activity“, which also excludes any kind of MRI activity. Following this concept, MS patients are pushed into intensifying their treatment whenever new lesions appear on MRI scans, even if they are symptom-free and clinically stable. There is not a single study that can prove that this strategy helps improve long term prognosis for MS patients. With all the remaining uncertainty regarding the pathology of MRI-lesions and all the inability to conclude from MRI to physical disability, NEDA really is a dubious treatment objective.

If we could measure changes that are responsible for certain physical disabilities with the help of MRI and if treatment was available that could improve precisely these changes, only then a treatment objective could be supported that solely focuses on making changes visible through imaging techniques. Until then, caregivers should look at clinical symptoms and preferences of their patients while making treatment decisions instead of panicking because of white spots on MRI scans.

*Jutta Scheiderbauer*

# can’t take it any longer?

## Just how many MS patients quit MS treatment? A German study has the numbers.

Talking to other MS patients or reading online forums, it seems as if a lot of MS patients quit taking their MS medication and refuse to start another. It is striking that no one has ever asked just how many there are and what had become of them. It seems as if non-adherence simply makes you a bad patient. [1]

In 2015, a study was published on the topic of adherence in German MS patients who were taking first generation MS treatment. The study was done under the auspices of Health Sciences Department of University of Dresden [2], and the approach was brilliant: they took data provided by the German Institute for Drug Use Evaluation (DAPI), who have access to over 80% of claims data from pharmacies. With the help of this data, it is possible to trace down which MS medication was taken by which MS patient for how long and how often, nationwide.

At the time of the study only a limited number of MS medications were available, but they had the same effect as today’s medication, that is: to prevent relapses. MS medication at that time consisted of two main substances: interferon beta (Avonex®, Rebif®, Betaseron and Extavia) and glatiramer acetate, and both were considered equivalent. Until Tysabri entered the market in 2006, these were the only drugs that had been at least formally tested in clinical trials with regard to their impact on preventing relapses.

**Method**

The study analyzed data on medical adherence of those MS patients who had started with one of the drugs available between the years of 2002 and 2006. The total survey period lasted from 01/01/2001 until 31/12/2009. Each patient was followed for 4 years: one year before filling the first prescription, 2 years of a monitoring phase and a follow-up for one year. Adherence was measured by the Medication Possession Ratio (MPR) and by persistency. MPR indicates just how precisely a patient sticks to the dosage regimen. Scientific practice has established a value for adherence that is MPR≥80. Thus, a patient is adherent if he has taken 80% of the dosage within the prescribed time. Persistency indicates how long a patient sticks to his treatment; an exact dose regimen is not important here.

**Results**

Looking at the medication possession ratio (MPR) shows that 39.9 % of the patients were sticking to the dose regimen, and 60.1% were dosing less than prescribed. Looking at the MPR values for each medication showed: Avonex® 42.8%, Betaseron® 40.6%, Rebif® 39.2% and Copaxone® 37%. In terms of persistency, we can see that over a period of 24 months 32.2% of the patients stuck to their treatment, whereas 67.7% did not continue treatment. Considering persistency values for each medication looks like this: Avonex® 34.2%, Betaseron® 33.4%, Rebif® 31.7% and Copaxone® 29.8%. Only 4.7% of all patients were starting a new treatment after a long pause from medication.

**Is it really unwise to end treatment?**

These results are not at all surprising. MS patients who had at first opted for a treatment, change their minds as soon as they have some experience with the treatment. It is important to consider that those patients only had 4 preparations to choose from, as no other preparations were available at this time. Thus, they opted to quit treatment inspite of alternatives. Medication, it seems, was more frightening than the disease itself, as soon as they had experienced both.

We do not quite know how this poor efficacy data for interferon beta and glatiramer acetate can lead any MS specialist to push their patients to early or long term treatment. Clinical trials with a short term of about 2 years showed that only a minority of 15% had a benefit from the medication, meaning no relapses. The larger amount of patients in the placebo group had no relapses without medication and 50% had relapses during treatment. The percentage of patients who did not develop a disability due to the medication was even smaller: 10%. On the other hand, 70% of the patients in the placebo group were doing fine. [4] Hence, the majority of patients did not benefit from this treatment, not even within a short time frame. There is no long-term data to sufficiently prove benefits of these immunotherapeutics.

We had been asking MS patients in an anonymous online survey to tell us about their opinion on MS medication. Did they think they that the benefits from treatment and constraints through treatment were balanced? Only a small percentage said that the benefits were higher than the constraints (Avonex 11.5%, Betaseron 37.0%, Rebif 21.7%, Copaxone 30.8%, that makes 22.7% for all medications), but the majority of patients said they had suffered from constraints more than they had benefitted: Avonex 78.8%, Betaseron 50.0%, Rebif 61.7%, Copaxone 46.2%, that makes 58.6% for all medications.[5]

Those MS patients questioned who tolerated their medication well will take it as long as they do not have new relapses. It is not important to them if a lack of relapses is due to the treatment or would have been like this without treatment. But, as soon as heavy side effects show up which contribute to a loss in quality of life, the patients realize just how small the chances are of benefitting from the medication and that they have to make a decision about whether it is really worth it. These thoughts and decisions should be easy to understand and should be respected by caregivers.

**Consequences?**

Looking at the data on adherence, it is obvious that MS medication is not taken long-term, as recommended, but mostly only for a short term. Additionally, only 40 % of the MS patients in the study take their medication in a sufficient dosage. Unfortunately the study did not provide data on just how many MS patients took the medication long-term and in the right dosage. It would have been interesting to see just how many MS patients, if any at all, are adherent after, for example, 4 years. Thus, the standard of treatment that really exists is an under-dosed short-term immunotherapy of less than 2 years duration. It is important to know that these drugs serve as comparative therapy when it comes to benefit assessment of new MS-medicaments.

It might be that a short-term treatment after diagnosis or at any other point in the course of disease is not worse than a long-term therapy. Perhaps the doctrine of long-term treatment only increases the risk but does not add to the benefit. It may be that all the good courses with MS that we see today are not due to immunotherapy but are due to the introduction of the McDonald-criteria of diagnosis in 2001 that helped double the number of diagnoses, since they are easy to fulfill. Far too many MS patients with no or few symptoms are expected to cope with side effects without knowing if they will benefit from the medication. Up to now, these issues have not been addressed in clinical studies. This problem should be rectified as soon as possible.

*Christiane Jung und Jutta Scheiderbauer*

# suicide and multiple sclerosis

## Increased suicide rates among MS patients?

“The number of suicides among MS patients is 30% or 7.5 times higher than average”[1]. This can be read on websites, in brochures and can be heard in lectures. It means that every third MS patient attempts suicide. Could this really be the case?

Whoever came up with these figures had probably read a study that was published in 1991: “Cause of death in patients attending multiple sclerosis clinics”. The study investigated the cause of death in a group of 3 126 MS patients. 145 patients died between 1972 and 1988. The cause of death could be determined for 119 patients. Among them, 18 had committed suicide, about 15%. The stated number of 30% can only be derived by discounting the most common cause of death among MS patients: complications arising from MS, i.e. pneumonia.

The study as such has limitations: As it covers only a small number of cases, it is not a representative sample, and it lacks a comparison group. Even the authors of the study make clear that the non-uniform information concerning the increase in suicide in the relevant literature - stating a range between 0.8 % up to 5.5 % - does not indicate a direct relationship between depression, suicide and MS.
Anyone who wants to find recent and more informative figures will find these in a large-scale study that was published in August 2016 in the European Journal of Neurology. The study followed 29 617 MS patients from the Swedish MS register (SMSreg) and the Swedish national patient register (NPR) between 1968 and 2012. 29 164 MS patients were part of the study. To generate an appropriate comparison group, almost every MS patient was randomly assigned 10 Swedish citizens without MS on the basis of place of residence, date of birth

and gender. In comparison to those without MS, the risk of an attempt of suicide was more than twice as high among MS patients. That means that 116.53 suicide attempts occur annually per 100 000 MS patients, in contrast to the comparison group where annually 50.8 suicide attempts per 100 000 occur. Furthermore, there is an 80% increased risk for completed suicide among MS patients. Thus, 30.31 suicides occur per 100 000 MS patients annually; in the comparison group it was 16.68 suicides annually per 100 000 persons.

In searching for the cause of these higher rates, the study looked at the duration of the disease and level of education, the latter usually being a protective factor against suicide. However, neither of these factors made an impact. Other possible risk factors were not assessed by the study, which is why there is no data on progression of physical disability, frequency and seriousness of flare-ups, psychiatric diagnosis – i.e. the presence of psychological disorders, somatic disorders, or economic or marital status. Information on treatment is also lacking and therefore no data ragrding medication for treatment of MS and/or other disorders was used. Thus, information on why the risk of suicide or attempted suicide is higher among MS patients cannot be derived from the study. However, other data on the causes of suicides in the general population might help explain this phenomenon.

It is often stated that the reason for 90 % of all suicides in western societies can be reduced to the presence of a psychological disorder[2]. Data on 2 396 rehabilitations shows that MS patients feel their quality of life is more limited by the presence of a psychological disorder than by the restricted ability to walk.[3] Appropriately, other studies indicate that there is a higher chance of developing a depressive symptoms as a result of an MS diagnosis.[4] If suicidal tendencies in MS patients are mainly caused by psychological disorders, the timely use of professional support would be helpful to prevent suicide. That requires caregivers to watch their MS patients closely, take statements and symptoms seriously and treat them accordingly. Only too often, psychological diagnosis is neglected while focusing on medical adherence.

To sum up: It is not known whether MS or other factors are the cause of suicide. In terms of statistics, the number of people with MS who kill themselves is indeed slightly higher, but definitely not as much as 30 %. Whoever continues to use this is high number contributes to the unnecessary spread of fear and worry among MS patients.

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# impressum

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**Silence is golden**

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**„I will abstain from all intentional wrong-doing and harm“**

**(Hippocratic Oath)**