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Management of acute relapses of Multiple Sclerosis in Malta

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Introduction

The lack of Multiple Sclerosis (MS) specialist nurses and an increasing prevalence of MS in Malta has raised questions as to whether MS patients are receiving appropriate treatment. The quality of care for patients with MS in Malta has not been previously described in the literature. This audit aims to establish a baseline and improve the quality of management of acute relapses of MS in Malta.

Methods

A standardized questionnaire based on the NICE guidelines for the management of MS was formulated and completed during a one-on-one interview. 35 patients diagnosed with Relapsing Remitting Multiple Sclerosis (RRMS) were recruited from outpatient clinics and in-patients stays with a mean patient age of 39. All participants recruited were diagnosed with MS after 2004. Only the data of latest acute relapse episode was collected. The data was collected across a 9-month period in 2015 and analyzed using SPSS.

Results

34% revealed a delay in presentation and access to treatment, 11% exhibited poor recognition of acute relapses and 47% admitted to lack of awareness of treatment side-effects.

Conclusion

A significant proportion of patients with an acute relapse in the Maltese population require better education and access to be available for more prompt presentation and management. A better-informed patient and a dedicated specialist nurse service may improve the quality of care.

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Introduction

Multiple Sclerosis (MS) is a complex, progressive and lifelong neurological disorder defined by demyelinating lesions within the brain and spinal cord, these lesions are characteristically disseminated in time and place. Formation of such lesions may coincide with a clinically apparent "acute relapse", in essence, a sudden deterioration in neurological function.

Prevalence of clinically probable Multiple Sclerosis (MS) in Malta has grown from 4.2/100,000 in 1978 to 16.7/100,00 in 1999. It is currently estimated that approximately 320 people suffer from MS in Malta.[1-2]

The purpose of this audit was to assess whether acute relapses of MS are being treated in accordance to the recommended NICE October 2014 guidelines, with the ultimate aim being improvement of the quality of care experienced by MS patients in Malta. Furthermore, the lack of a Multiple Sclerosis specialist nurse within the multidisciplinary team has raised questions on the current clinical care is prompt and adequate for acute relapses of Multiple Sclerosis

Materials and Methods

Data collection was carried out prospectively over a period of 9 months in 2016. Patients were recruited from the Multiple Sclerosis Clinic and the Medical Therapy Unit at Mater Dei Hospital. Patients who were recruited to the study attended a one-on-one interview with a single assigned medical doctor equipped with a standardized questionnaire.

The Questionnaire used was based on the "NICE Guidelines: Management of Multiple sclerosis in primary and secondary care" issued in 2014 as best practice. The area of the NICE guidelines we focused on in our audit was section 1.7 (Relapse and Exacerbation). We used this section to produce a questionnaire that was used as framework for the interview. This questionnaire and quoted section from guidelines are demonstrated below the references in the boxes below.

Patients were also given the freedom to add their personal comments and feedback during the interview. Patients included in the study were recruited opportunistically provided that they met the inclusion criteria below.

Information letter for patients in both English and Maltese language were distributed, in addition, Consent was obtained from each patient. Ethical Approval was sought from the local Ethics committee.

Inclusion criteria

We included patients meeting the McDonald criteria for the diagnosis of MS.[3] Only patients who were diagnosed with MS after 2004 were included, and only those who had presented with an acute relapse from 2008 to 2016. Patients below 18 years of age were excluded. In order to minimize recall bias, data collection was carried out for the single latest relapse, *Figure (1)* illustrates the date of relapses selected. Data analysis was carried out using SPSS.

Results

A total of 35 Patients met the inclusion criteria. The mean age of patients recruited was 39. The male to female ratio was 2:3, and the majority of patients (29) had a Relapsing Remitting MS Course, while the remainder (6) had a Clinically Isolated Syndrome (CIS).

Recognition of Relapse

A true acute relapse is defined as neurological deficit lasting for >24 hours in the absence of

infection, as stipulated in the 2010 McDonald Criteria. [3]

Of all the patients interviewed, 86% of them met the appropriate diagnostic criteria of an acute MS relapse. Most relapses assessed occurred in 2016 as shown in *Figure (1).*

Table (1) summarizes the results of the relapse awareness from our questionnaire. Clinically isolated syndrome refers to patients diagnosed with MS after a single episode of acute MS relapse.

Over 34% of patients showed a delay of more than 14 days in the time to treatment from the initial onset of symptoms as illustrated by *Figure (2).*

For the patients who received IV steroids, *Figure (3)* shows the total duration of treatment given. The most common duration was 5 days, a maximum of 7 days and a minimum of one day. only 2 patients did not receive methylprednisolone.

Figure 1: Histogram of relapses measured

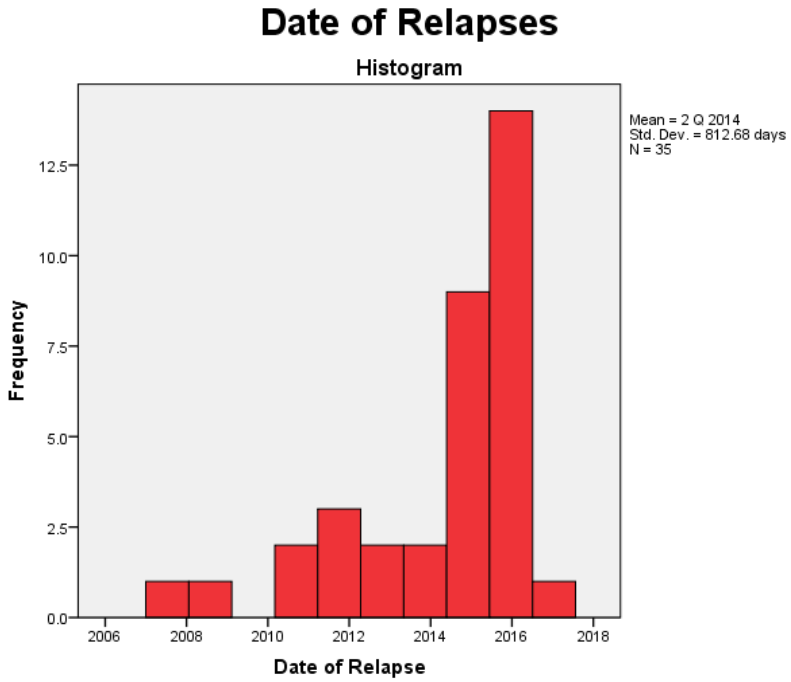


Table 1: Recognizing a Relapse

	Yes	No
Duration of symptoms >24 hours	30(86%)	5(14%)
Symptoms in the absence of infection and fever	30(86%)	5(14%)
Significant impact on ADLs*	24 (68%)	11(32%)
Developed New or Worsening of existing symptoms	30(86%)	5(14%)
Clinically Isolated Syndrome	6(17%)	29(83%)

**ADL: Activities of Daily Living

Figure 2: Time from onset of symptoms to treatment

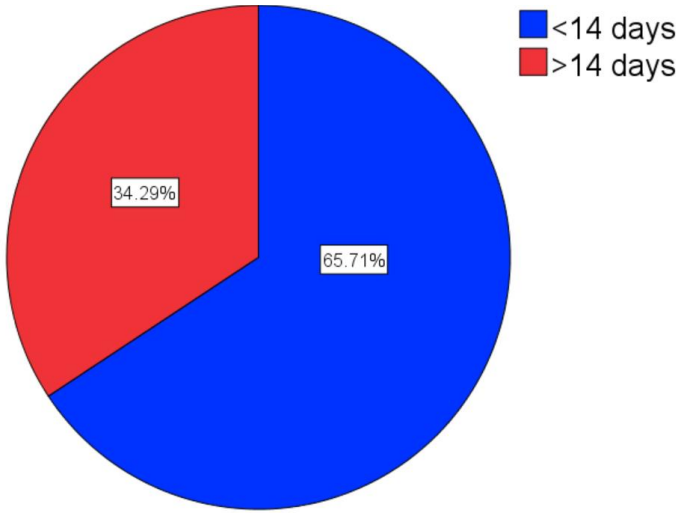
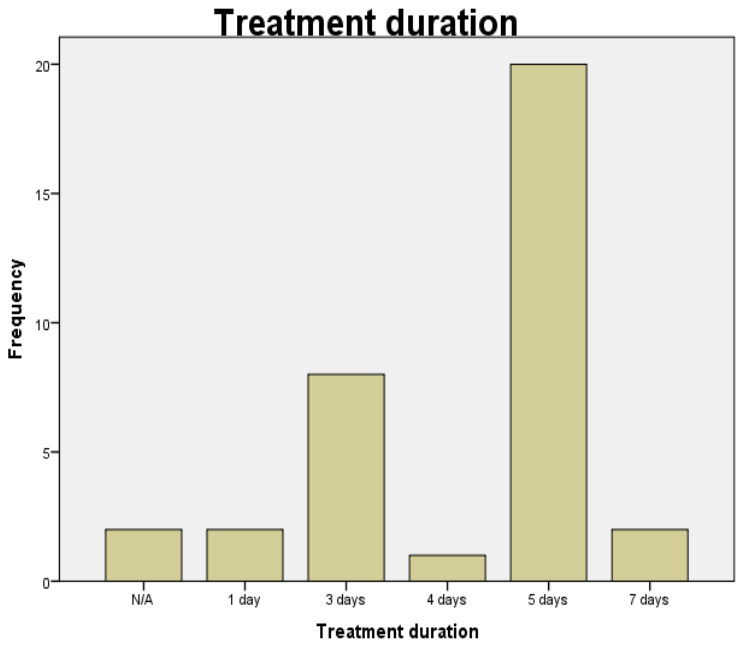


Figure 3: Total duration of IV methylprednisolone given during relapses



Treating a Relapse

89% (31) of patients received IV Methylprednisolone as treatment for their relapse. Treatments given, including doses and duration are shown in Table (2). The remaining 11% (4) of patients did not receive any treatment for their relapse.

Almost one third of patients required inpatient treatment, the breakdown of length of stay and reason for admission is shown in Table (3). Patient are usually admitted in view of a severe disabling relapse, monitoring of a medical or psychiatric condition, or due to poor social support.

Table 2: Summarizes patients characteristics

○ Total number of Patients recruited:	35
○ Received treatment as outpatient	23
○ Received treatment as inpatient	12
- Severe Relapse	9
- Monitoring of Medical condition	3
○ Average Length of Stay	3.9 days

Table 3: Results from treatment section of questionnaire:

○ Lack of Awareness of adverse effects	47%
○ Lack of Focused Patient - Doctor discussion	50%
○ Lack of Formal patient information provided	74%

Information about treating a relapse

We aimed to appraise the basic knowledge of patients on steroid treatment. 47% of patients reported lack of awareness of potential drug adverse effects. 50% claimed that they did not receive any formal discussion with a health care professional regarding risks and benefits treatment. 74% did not receive any formal patient information (e.g. leaflets, website sign-posting) regarding the recognition of relapse.

Medical, therapy and social care needs at time of relapse or exacerbation

33% of patients were referred to a rehabilitation facility (Physiotherapy, Occupational therapy, Speech Language Pathology).

Discussion

At the outset of this audit, we wanted to assess whether the current practice in Malta meets the quality standards set out by NICE guidelines for the management of MS in 2016. [6]

Results show that the overwhelming majority of patients are referred for first line treatment once they are recognized as having an acute relapse. However, it has been identified that service provision can be optimized in, but not limited to, the following areas:

1. It is clear that among some patients there is a delay in access to treatment, thus more timely recognition of those patients in an acute relapse is required. This study demonstrates that of all patients receiving first line treatment, 34% of them received treatment outside the recommended 14-day window suggested by the guidelines. Therefore, identification of the barriers to access in a manner medical attention is an area for further study.
2. MS relapses maybe overlooked by patients and can be confused with symptom fluctuation, as our study showed that 11% of patients did not receive any treatment for their clinically significant relapse symptoms. this highlights the importance of patient education especially with regards to MS relapses. This aspect of MS care is not well documented in the research literature, however, a nursing qualitative study Ross AP et al.[4] recognizes this overlooked issue.

3. This study further elucidated that 47% of patients reported no recollection of a discussion about the potential advantages and disadvantages of commencing steroid treatment and hence constitutes the second area identified for optimization. It is of paramount importance for patient safety that patients are made aware of the most relevant risks and benefits of steroid treatment. However, it is sometimes impractical to have lengthy discussions regarding risk benefit. Patients who receive timely steroid treatment do not necessarily improve, in fact, almost one third perceive the outcomes to be worse on account of the treatment, according to a large-scale observational study carried out by Nickerson et al. [5]

The limitations of this audit included a small sample size and retrospective data collection. A larger sample size and prospective data collection will provide us with stronger evidence to further support the findings. Furthermore, data collected depended on the recollection of relapses by patients, prospective collection and review of clinical notes may provide a more accurate information and minimize recall bias.

Recommendations

As a result of the qualitative findings, we are proposing 3 recommendations to improve patient care in accordance with best practice as set out by NICE guidelines [6] in the management of MS:

1. To improve patient knowledge in recognizing relapse and to expedite access to treatment. Patients could be provided with a 'MS Passport' listing most common symptoms, well as including contact details of a named individual, e.g., MS nurse specialist, to contact if such symptoms occur.
2. To provide adequate and comprehensive information on the risks and benefits of steroid treatment and that these should be made available to patients in an accessible format at the earliest point of contact, ideally prior to acute flares. This could be in the form of patient information leaflets.
3. To introduce a MS Specialist nurse to the Multi-disciplinary team in order provide vital support to patients with MS in Malta.

Summary

What is already known:

1. MS is associated with high levels of morbidity
2. Acute Relapses require prompt assessment and may be mimicked by infection, or chronic symptom fluctuations

What are the new findings?

1. A third of acute MS relapses may go unrecognized or present late
2. Patient education and access to specialist nurse is recommended in Malta

References

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5. Nickerson M, Marrie RA. The multiple sclerosis relapse experience: patient-reported outcomes from the North American Research Committee on Multiple Sclerosis (NARCOMS) Registry. BMC Neurol. 2013;13:119. doi:10.1186/1471-2377-13-119 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3848753/
6. Multiple sclerosis in adults: management. NICE Clinical guideline Published: 8 October 2014 www.nice.org.uk/guidance/cg186

Below is the Multiple Sclerosis Questionnaire used for data collection derived from MS NICE guidelines [6]

Multiple sclerosis acute relapse questionnaire

based on Multiple Sclerosis NICE guidelines 2014

Name: ID number:

Gender: Date of Birth:

Year of diagnosis: Date of Relapse:

Recognizing a Relapse

- Developed new symptoms or worsening of existing symptoms [1.7.3]

☐ Yes ☐ no

- Duration of symptoms: [1.7.3]

☐ <24 hours ☐ >24hours

- Infection ruled out: [1.7.4]

☐ Yes ☐ no

If yes: ☐ UTI ☐ RTI ☐ GI ☐ Other _____

- Signs and symptoms discriminated from Disease progression or fluctuation [1.7.4]

☐ Yes ☐ no

-Time from onset of symtpoms to treatment: [1.7.5]

☐ <14 days ☐ >14 days

-Impact on Activities of Daily living [1.7.5]

☐ Yes ☐ no

-Symptoms present for longer than 3 months: [1.7.5]

☐ Yes ☐ no

Treating a Relapse

- Treatment prescribed: [1.7.7; 1.7.8]

	Dose	Frequency	Duration
☐ Methylprednisolone IV			
☐ Prednisolone PO			
☐ Other_____			

-Treatment as In-patient : [1.7.8]

☐ In-patient Length of stay_____ ☐ No

- If treated as In-Patient, what is the indication for admission [1.7.8, 1.7.9, 1.7.10]

□ Severe Relapse.

□ Monitoring of medical condition

□ Monitoring of psychological condition

□ Poor social support

□ Other _____

-Extra-supply of steroids prescibed for self adminstration [1.7.10]

☐ Yes ☐ no

Information about treating a relapse of steroids

-Benefits and risks of treatment discussed: [1.7.11]

☐ Yes ☐ no

-Potential Side Effects of treatment discussed: [1.7.12]

☐ Yes ☐ no

- Information of Potential Side Effects of treatment given: [1.7.13]

☐ Yes ☐ no

-Multidisciplinary team informed: [1.7.14]

☐ Neurologist ☐ Occupational therapy

☐ Social worker ☐ GP ☐ Physiotherapy

Medical, therapy and social care needs at time of relapse or exacerbation

- □ Rehabilitation Referral
- □ Social worker referral
- □ In-patient treatment offerred if deficient medical or social care needs at home
- □ Patient informed of short term cognitive effects of relapse
- □ Symptom management

Boxes below from Multiple sclerosis in adults: management NICE guidelines Published: 8 October 2014 [6]

1.7 Relapse and exacerbation

Treating acute relapse of MS with steroids

1.7.1 Develop local guidance and pathways for timely treatment of relapses of MS. Ensure follow-up is included in the guidance and pathway.

1.7.2 Non-specialists should discuss a person's diagnosis of relapse and whether to offer steroids with a healthcare professional with expertise in MS because not all relapses need treating with steroids.

Recognizing a relapse

1.7.3 Diagnose a relapse of MS if the person:

- develops new symptoms or
- has worsening of existing symptoms and these last for more than 24 hours in the absence of infection or any other cause after a stable period of at least 1 month.

1.7.4 Before diagnosing a relapse of MS:

- rule out infection – particularly urinary tract and respiratory infections and
- discriminate between the relapse and fluctuations in disease or progression.

1.7.5 Assess and offer treatment for relapses of MS, that affect the person's ability to perform their usual tasks, as early as possible and within 14 days of onset of symptoms.

1.7.6 Do not routinely diagnose a relapse of MS if symptoms are present for more than 3 months.

Treating a relapse

1.7.7 Offer treatment for relapse of MS with oral methylprednisolone 0.5 g daily for 5 days.

1.7.8 Consider intravenous methylprednisolone 1 g daily for 3–5 days as an alternative for people with MS:

- in whom oral steroids have failed or not been tolerated or
- who need admitting to hospital for a severe relapse or monitoring of medical or psychological conditions such as diabetes or depression.

1.7.9 Do not prescribe steroids at lower doses than methylprednisolone 0.5 g daily for 5 days to treat an acute relapse of MS.

1.7.10 Do not give people with MS a supply of steroids to self-administer at home for future relapses.

Information about treating a relapse with steroids

1.7.11 Discuss the benefits and risks of steroids with the person with MS, taking into account the effect of the relapse on the person's ability to perform their usual tasks and their wellbeing.

1.7.12 Explain the potential complications of high-dose steroids, for example temporary effects on mental health (such as depression, confusion and agitation) and worsening of blood glucose control in people with diabetes.

1.7.13 Give the person with MS and their family members or carers (as appropriate) information that they can take away about side effects of high-dose steroids in a format that is appropriate for them.

1.7.14 Ensure that the MS multidisciplinary team is told that the person is having a relapse, because relapse frequency may influence which disease-modifying therapies are chosen and whether they need to be changed.

Medical, therapy and social care needs at time of relapse or exacerbation

1.7.15 Identify whether the person having a relapse of MS or their family members or carers have social care needs and if so refer them to social services for assessment.

1.7.16 Offer inpatient treatment to the person having a relapse of MS if their relapse is severe or if it is difficult to meet their medical and social care needs at home.

1.7.17 Explain that a relapse of MS may have short-term effects on cognitive function.

1.7.18 Identify whether the person with MS having a relapse or exacerbation needs additional symptom management or rehabilitation.