

## Research Article

## Falls and Fractures in Cohort of 100 Patients with Multiple Sclerosis

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## Abstract

Risk of falls and fractures in patients with multiple sclerosis. The problem of falls and subsequent fractures in patients with multiple sclerosis has been discussed extensively recently, but the main question remains open. What are the risk factors. A group of 100 patients with relapsing-remitting MS, diagnosed according to the current McDonald criteria, comprised the study group. Sporadic or repeated falls were noted in 22 cases, but only in 4 cases with fractures, and in 2 with head contusion, without evident fracture of the cranial base. We did not observe a marked relation with frequency of methylprednisolone treatment. Therefore it seems justified to conclude that falls in MS are the result of neurological symptoms in MS.

**Keywords:** Multiple sclerosis; Falls; Fractures; Corticosteroid

## Introduction

The problem of falls and subsequent fractures in patients with multiple sclerosis (MS) has been discussed extensively recently, but the main question remains open. What are the risk factors - the disease itself, repeated corticosteroid therapy of MS relapses, or the concomitant use of anxiolytics/hypnotics and antidepressants? The clinical significance of the problem justified our interest.

## Material and Methods

A group of 100 patients (76 female and 24 male) with relapsing-remitting MS, diagnosed according to the current McDonald criteria, comprised the study group [1-3]. After taking the history of MS with special interest on falls and fractures all available medicinal records of in- and out-clinics connected with above events were critically evaluated. Patients taking concomitantly anxiolytics/hypnotics or antidepressants were excluded from the study. The age of patients was 24 to 55 years (mean 36 years). The first signs or symptoms of MS appeared in analysed patients 7 to 29 years before the study (mean 18 years) EDSS score was 2.0 to 6.0 /see Table 1. The patients had

been treated for 2 to 13 years with interferon  $\beta$ 1a (63 patients) or with glatiramer acetate (37 patients) and during relapses with infusions of 1 g methylprednisolone for 5 days.

## Results

Sporadic or repeated falls were noted in 22 cases (22%), but only in 4 cases (4%) with fractures, and in 2 with head contusion, without evident fracture of the cranial base. The falls were noted in cases with only sporadic (1 to 3 cycles of corticosteroid infusion) and with repeated ones (4 to 15) and in patients with various EDSS score. Details of cases with falls and fractures are presented in Table 1.

## Discussion

In our study we analysed a 5-year period after sporadic or repeated methylprednisolone treatment of MS relapses. The first question, which is difficult to answer is, whether falls and subsequent fractures in the MS cohort are more frequent than in the general population. The comparison is not an easy one. The MS patients are less mobile and often avoid physical work. We ruled out the possibility of the

**Table 1:** Falls and fractures of MS patients after 5-year period of methylprednisolone treatment of relapses.

Sex	Age of patients	Time from MS onset	EDSS before 5-year period of methylprednisolone	Number of relapses with methylprednisolone infusions	Number of falls	Fractures
F	47	15	3.0	10 /moderate/	4	Head contusion
M	55	28	4.0	8 /mild or moderate/	12	No
F	42	16	4.5	2 /mild/	14	No
F	43	16	3.5	4 /mild/	5	No
F	44	40	5.0	6 /moderate/	3	No
M	48	10	3.0	4 /mild/	1	Head contusion
F	53	12	3.0	4 /mild/	4	Ribs fracture
M	49	17	5.5	3 /mild/	11	No
M	46	19	5.0	2 /mild/	2	No
F	41	11	2.5	3 /mild/	12	Radial bone fracture

F	56	17	3.0	8 /mild or moderate/	6	No
M	45	12	3.0	6 /moderate/	8	No
F	39	10	2.5	4 /mild/	2	No
F	42	14	4.0	3 /mild/	4	No
M	31	09	2.0	2 /mild/	1	No
F	42	16	3.5	8 /mild or moderate/	5	No
F	46	18	6.0	10 /mild or moderate/	8	Ribs fracture
M	39	10	2.5	6 /mild or moderate/	7	No
F	49	19	6.0	8 /mild or moderate/	6	Radial bone fracture
F	51	20	5.5	2 /mild/	1	No
F	50	22	6.0	4 /mild/	3	No
M	36	17	4.0	5 /moderate/	2	No

effect of anxiolytics/hypnotics drugs as a factor increasing the risk of falls in our analysis. We did not observe a marked relation with frequency of methylprednisolone treatment and EDSS score before the study period. Therefore it seems justified to conclude that falls in MS are the result of neurological symptoms in MS.

Methylprednisolone infusion is the best method to eliminate the sequelae of relapses and therefore cannot be eliminated. The effect of treatment is based on the impact of methylprednisolone infusions on immunological exponents of the disease. The significant decline of the IgG level and IgG index in the CSF were observed. However the treatment is incapable to completely eradicate the impaired immunoglobulin G synthesis in MS. What we might advice to the patient sounds so simple and so evident as to be almost ridiculous. The patients should be extremely cautious and use canes or crutches

when walking around. The other advice is to evaluate the bone mineralisation by X-ray methods and when osteoporosis, even in the first stage, is established, to start appropriate treatment.

### References

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