

## ABSTRACTS OF INVITED LECTURES AND FREE PAPERS

### Temporal variation of onset of relapses in multiple sclerosis is not seasonal: results from the MSBase registry

<sup>1</sup>\*OM Gray, <sup>2</sup>\*D Jolley, <sup>3</sup>C Zwanikken, <sup>4</sup>M Trojano, <sup>5</sup>F Grand'Maison, <sup>6</sup>P Duquette, <sup>7</sup>P Grammond, <sup>8</sup>R Bergamaschi, <sup>9</sup>G Giuliani, <sup>9</sup>R Taffi, <sup>10</sup>RMM Hupperts, <sup>11</sup>T Petersen, <sup>12</sup>C Boz, <sup>13</sup>ME Rio, <sup>14</sup>V Van Pesch, <sup>15</sup>E Roulet, <sup>16</sup>J Lechner-Scott, <sup>17</sup>G Izquierdo, <sup>18</sup>E Cristiano, <sup>19</sup>D Pöhlau, <sup>20</sup>M Fiol, <sup>21</sup>W Oleschko Arruda, <sup>22</sup>N Deri, <sup>23</sup>S Flechter, <sup>24</sup>M Paine, <sup>25</sup>A Savino, <sup>1</sup>MW Hoffmann, <sup>1</sup>H Butzkueven

<sup>1</sup>Royal Melbourne Hospital, Victoria, <sup>2</sup>Monash Institute of Health Services Research, Victoria, Australia; <sup>3</sup>MS-Centrum Nijmegen, Nijmegen, The Netherlands; <sup>4</sup>University of Bari, Bari, Italy, <sup>5</sup>Charles LeMoyné Hospital, Quebec, <sup>6</sup>CHUM Hopital Notre Dame, Montreal, <sup>7</sup>Hopital Hotel-Dieu de Levis, Quebec, Canada; <sup>8</sup>Neurological Institute, Pavia, <sup>9</sup>Ospedale Generale Provinciale Macerata, Macerata, Italy; <sup>10</sup>Maaslandziekenhuis, Sittard, The Netherlands; <sup>11</sup>Kommunehospitalet, Århus C, Denmark; <sup>12</sup>KTU Farabi Hospital, Trabzon, Turkey; <sup>13</sup>Hospital S. Joao, Porto, Portugal; <sup>14</sup>Cliniques Universitaires Saint Luc, Brussels, Belgium; <sup>15</sup>Hopital Tenon, Paris, France; <sup>16</sup>John Hunter Hospital, New South Wales, Australia; <sup>17</sup>Hospital Universitario Virgen Macarena, Sevilla, Spain; <sup>18</sup>Hospital Italiano, Buenos Aires, Argentina; <sup>19</sup>Multiple Sclerosis Centre Kamillus-Klinik, Asbach, Germany; <sup>20</sup>FLENI, Buenos Aires, Argentina; <sup>21</sup>Hospital Ecoville, Curitiba, Brazil; <sup>22</sup>Hospital Fernandez, Buenos Aires, Argentina; <sup>23</sup>Assaf Harofeh Medical Center, Beer-Yaakov, Israel; <sup>24</sup>St Vincent's Hospital, Victoria, Australia; <sup>25</sup>Hospital de Clinicas Jose San Martin, Buenos Aires, Argentina

\*Equal authorship

*Background:* Previous studies into time of onset of relapses of multiple sclerosis (MS) have been reported with conflicting results. Some have reported that relapses are seasonal, with more relapses in spring and fewest in winter, whereas others have reported no such variation. A meta-analysis of all studies in the northern hemisphere suggests that relapses do occur in highest frequency in spring.<sup>1</sup> The proposed mechanism is that reduced vitamin D levels at spring onset precipitate relapses. However small numbers, differing diagnostic criteria and the involvement of single regions limited these studies. To date no study on time of relapse onset in the southern hemisphere has been published.

*Objective:* To determine if there is a temporal variation in onset of relapses in both the northern and southern hemispheres using the MSBase registry<sup>2</sup>, a large, multi-centred cohort study of MS outcomes.

*Methods:* Data was extracted on 16<sup>th</sup> July 2008 from all centres with more than fifty cases. All cases satisfied the Poser criteria for definite MS or the McDonald criteria for MS. The dataset comprised 7,860 cases with all forms of MS from 33 centres in 16 countries, including 25,784 documented relapses. Data was analysed for common default dates used by centres. Relapses with 1<sup>st</sup> January recorded as day of onset were excluded, leaving 22,684 in total including 5,542 first relapses. Relapses were stratified by hemisphere of residence and compared by season, quartile and month of onset. First demyelinating events were also analysed separately. Statistical analysis was performed using chi-squared test.

*Results:* 22,684 relapses (19,775 northern, 2,909 southern) were included. Relapses were significantly more common in spring in the northern hemisphere (P<0.0001) and autumn in the southern hemisphere (P<0.0001). June had the highest number of relapses than any other month in both hemispheres (P<0.0001). These results were replicated with analysis of the 5,542 first demyelinating events in MS cases (4,801 northern, 741 southern) with more first events in spring in the northern hemisphere (P<0.0001) and more in Autumn in the southern hemisphere (P<0.0001).

**Conclusions:** A temporal variation in onset of relapses is present in both northern and southern hemispheres. However, peak relapse incidence does not occur in the same season - relapses are more common in spring in the northern hemisphere and autumn in the southern hemisphere. The highest incidence of relapses in the northern hemisphere is at the end of spring in the month of June, not spring onset in this large cohort.

## References

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2. Butzkueven H, Chapman J, Cristiano E, *et al.* MSBase: an international, online registry and platform for collaborative outcomes research in multiple sclerosis. *Mult Scler* 2006; 12:769-74.