**Description of the project:**

A double-blind randomized controlled trial was conducted in a teaching hospital in Thailand, to investigate two treatments for patients suffering from multiple sclerosis (MS). One hundred and twenty suffers of the disease were enrolled into the study, and 60 were randomized to receive azathioprine (AZ) alone), and 60 were randomized to receive azathioprine + methylprenisommne (AZ + MP).

For each participant, a measure of autoimmunity, AFCR\*, was planned at clinic visits at baseline (time 0, at initiation of the treatment) and at 3, 6, 9, 12, 15, and 18 months thereafter. Multiple sclerosis affects the immune system: low values of AFCR (approaching 0) are evidence that immunity is improving, which is hopefully associated with a better prognosis for suffers of MS.

*\*(Absolute Fc receptor (AFCR) is the number of lymphocytes having the Fc receptor in a 1 mm3 sample of peripheral blood. One goal is to reduce the level of AFCR.)*

**Description of the data set:**

The data described for each record which corresponds to a single observation;

id = subject id

time = time (months) – time measured AFCR level at baseline, 3, 6, 9, 12, 15, and 18 months.

sqafcr = square root AFCR – mean AFCR becomes lower with cutoff point of 11, so treatment is good.

group = treatment group – treatment of interest (group 1 = AZ alone, group 2 = AZ + MP)

ptreat = prior treatment indicator – Prior history on previous treatment with either of the study agents (0=no, 1=yes)

age = age in year – age at baseline

Data set:

| id | sqafcr0 | sqafcr3 | sqafcr6 | sqafcr9 | sqafcr12 | sqafcr15 | sqafcr18 | group | ptreat | age |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 9 |  |  |  | 9 | 11 | 11.5 | 0 | 0 | 47 |
| 2 | 10.5 |  | 11.2 | 8.7 | 12.6 |  | 10.9 | 0 | 0 | 48 |
| 3 | 11.9 | 14.1 | 9.8 |  | 12.7 | 9.8 | 9.5 | 0 | 0 | 53 |
| 4 | 9.5 |  | 11.4 | 7.6 | 5.4 | 5.9 | 10.5 | 0 | 0 | 46 |
| 5 | 13.9 | 11 | 14.7 | 13.6 | 15 |  | 10.8 | 0 | 0 | 56 |
| 6 |  | 11 | 12.3 | 13 | 8.5 | 11 | 5 | 0 | 0 | 50 |
| 7 | 15.1 | 12.4 | 11.2 | 10.5 | 9.8 | 10.9 | 10.1 | 0 | 0 | 52 |
| 8 | 12.5 | 10 | 12.4 | 9.6 | 7.6 | 10.1 | 6.5 | 0 | 0 | 44 |
| 9 | 11.8 | 13.9 | 12.4 | 11.5 | 13.4 |  | 8.2 | 0 | 0 | 44 |
| 10 |  |  | 11.5 | 11.6 | 10.7 | 10.4 | 8.4 | 0 | 0 | 53 |
| 11 | 11.8 | 12.2 | 10.2 | 9.7 | 9 | 10.6 | 11.8 | 0 | 0 | 35 |
| 12 | 14.4 |  | 10 |  |  | 8.4 | 11.4 | 0 | 0 | 61 |
| 13 | 14 |  | 13.4 | 13.5 | 11.3 | 9.5 | 9.3 | 0 | 0 | 50 |
| 14 | 13.4 | 12.2 | 11.7 | 7.7 | 11.1 | 5.6 | 7.9 | 0 | 0 | 57 |
| 15 |  | 9.5 | 7.9 | 12.6 | 5.1 | 8 |  | 0 | 0 | 43 |
| 16 | 15.9 | 13.8 | 9.8 | 10.2 | 11.7 | 10.8 |  | 0 | 0 | 44 |
| 17 |  | 8.7 | 9.1 | 10.9 | 11.8 | 10.3 | 8.9 | 0 | 0 | 45 |
| 18 | 13 | 11.3 | 11.2 | 7.4 | 9 | 9.9 | 9.7 | 0 | 0 | 52 |
| 19 | 12.7 | 11 |  | 10.6 | 10.2 |  | 10.1 | 0 | 0 | 48 |
| 20 |  | 12.6 |  | 9.9 |  | 11.9 | 6.1 | 0 | 0 | 47 |
| 21 | 14.7 | 15.6 | 12.7 | 14.9 |  | 13 | 15.6 | 0 | 0 | 65 |
| 22 |  | 13 | 10.1 | 8.2 |  | 4.9 | 7.1 | 0 | 0 | 40 |
| 23 | 15 | 10.2 |  | 10.5 | 10.6 | 13.3 | 9.8 | 0 | 0 | 54 |
| 24 | 14.1 | 14.5 | 10.6 | 9.7 | 9 | 9.5 | 9.5 | 0 | 0 | 46 |
| 25 | 14.7 | 10.5 | 11.3 | 10.2 | 8.2 | 8.6 | 9.2 | 0 | 0 | 49 |
| 26 |  | 11.6 |  | 12.2 | 11.3 | 9.5 | 9.7 | 0 | 0 | 50 |
| 27 | 17 | 14.1 | 16.9 | 15 | 15 |  | 12.3 | 0 | 1 | 61 |
| 28 | 15.2 |  | 13.9 | 13.6 | 13 | 10.9 | 14.4 | 0 | 1 | 47 |
| 29 | 11.2 |  | 15.2 | 13 | 11.2 | 11.7 | 12.5 | 0 | 1 | 59 |
| 30 | 15.2 | 15.4 | 13.7 | 14.9 | 14.9 | 13 | 13.2 | 0 | 1 | 58 |
| 31 |  | 13.1 | 12.7 | 14.5 | 8.6 |  |  | 0 | 1 | 52 |
| 32 | 10.3 |  | 13.7 | 4.8 |  | 8 |  | 0 | 1 | 37 |
| 33 | 16.4 |  | 15.3 | 15.5 | 12.1 | 10.5 |  | 0 | 1 | 59 |
| 34 | 11.3 | 14.8 | 12.2 |  |  | 13.1 | 12.1 | 0 | 1 | 50 |
| 35 | 9.6 | 12.1 | 9.7 | 7.8 |  | 10.7 | 4.9 | 0 | 1 | 45 |
| 36 | 12.2 | 10.6 | 11.7 | 14.1 | 9.5 | 11.2 | 7.7 | 0 | 1 | 45 |
| 37 | 12.6 | 11.3 | 13.7 |  | 13 | 10.6 | 13.4 | 0 | 1 | 57 |
| 38 | 13.2 | 12 |  | 10.4 | 11.1 | 13 |  | 0 | 1 | 35 |
| 39 |  | 14.3 | 13.4 | 13.4 | 11.7 |  | 12.9 | 0 | 1 | 62 |
| 40 | 15.1 | 13.7 | 11.7 | 12.8 | 10.1 | 12.2 | 9.7 | 0 | 1 | 50 |
| 41 |  | 13.2 | 13.2 | 15.5 | 12.9 | 12.4 |  | 0 | 1 | 54 |
| 42 | 14.8 | 13.6 | 13.8 |  | 15.1 | 11 | 10.7 | 0 | 1 | 58 |
| 43 | 9.9 | 13 | 11.8 | 15.3 | 10.9 | 14 | 13.1 | 0 | 1 | 53 |
| 44 | 11.1 | 11.4 |  |  | 11.1 | 11.3 | 8.6 | 0 | 1 | 50 |
| 45 |  | 10.7 |  | 11.4 | 11.6 | 8.7 | 9.1 | 0 | 1 | 54 |
| 46 | 12.2 | 13.6 | 12.5 |  | 8.8 | 11.2 | 11.2 | 0 | 1 | 53 |
| 47 |  | 13.7 | 15 | 16.4 | 15.5 | 14.9 | 14.8 | 0 | 1 | 73 |
| 48 | 12.7 | 10.9 | 9.6 | 8.7 | 13 |  |  | 0 | 1 | 41 |
| 49 | 16.5 | 14.4 | 11.1 | 11.5 |  | 14.4 | 14.2 | 0 | 1 | 58 |
| 50 | 14.4 | 11.2 | 8.6 | 8.3 | 10.1 | 8.8 | 10 | 0 | 1 | 41 |
| 51 | 14.7 |  | 14.5 | 14.5 | 15.6 | 12.4 | 16.1 | 0 | 1 | 63 |
| 52 |  | 10.1 | 10.5 | 7.8 | 10.2 | 8 | 7.2 | 0 | 1 | 47 |
| 53 | 14.2 | 16.1 | 12.8 | 15.1 | 15.9 | 11 |  | 0 | 1 | 59 |
| 54 | 17.1 | 14.5 |  |  | 13 |  | 13 | 0 | 1 | 54 |
| 55 | 12.5 | 10.8 |  | 9.4 | 8.8 | 11 | 8 | 0 | 1 | 53 |
| 56 | 13.4 |  |  | 11.4 |  | 13.5 |  | 0 | 1 | 45 |
| 57 | 16.6 | 10.3 | 14.8 | 17.2 | 13.5 | 9.7 |  | 0 | 1 | 55 |
| 58 | 14.9 | 12.2 | 13.3 | 11.5 | 10.7 | 13.9 | 7.9 | 0 | 1 | 58 |
| 59 | 11.4 |  | 10.2 | 11.1 | 11.1 | 13 | 8.9 | 0 | 1 | 55 |
| 60 | 18.7 | 14.1 | 13.1 | 15.7 | 12.1 | 13.2 | 11.7 | 0 | 1 | 52 |
| 61 | 12.6 | 8.7 |  | 9.6 | 10.2 |  | 9.9 | 1 | 0 | 53 |
| 62 | 16.1 | 14.9 | 11.8 | 12.2 | 9 | 7.1 | 9.4 | 1 | 0 | 46 |
| 63 | 9.7 |  | 9.1 | 10.8 | 11.7 | 9.3 |  | 1 | 0 | 55 |
| 64 | 15.7 | 9.9 | 10.1 | 11.1 | 10.7 |  | 10.5 | 1 | 0 | 45 |
| 65 | 17 | 15.8 | 10.1 |  | 14.3 | 11.7 |  | 1 | 0 | 61 |
| 66 | 13.7 | 8.7 | 12.4 |  |  | 11 |  | 1 | 0 | 43 |
| 67 | 10.2 |  | 9.4 | 9.7 | 10.5 | 10.9 | 4.7 | 1 | 0 | 44 |
| 68 |  | 12.8 | 11 | 12.7 | 11 |  |  | 1 | 0 | 45 |
| 69 | 13.3 |  | 12.3 |  | 12.8 |  | 12.9 | 1 | 0 | 55 |
| 70 | 16.5 | 14.4 |  |  | 11.4 | 11.9 | 11.9 | 1 | 0 | 67 |
| 71 | 16.1 |  |  |  | 12 |  | 10.7 | 1 | 0 | 52 |
| 72 | 10.8 |  |  | 9.4 | 9.9 |  | 6.3 | 1 | 0 | 50 |
| 73 | 11.6 |  |  | 11.9 | 7.8 | 8.5 |  | 1 | 0 | 54 |
| 74 |  | 16.1 | 12 |  | 11 |  | 6.5 | 1 | 0 | 51 |
| 75 |  | 14.3 | 10.5 | 13.5 | 13.5 |  | 7.9 | 1 | 0 | 61 |
| 76 | 13.7 | 12 | 9.3 | 9.5 | 10.9 | 8.6 |  | 1 | 0 | 52 |
| 77 | 11.4 | 13.6 | 9.3 | 7.1 | 10.1 | 7.8 |  | 1 | 0 | 50 |
| 78 | 13.4 | 12.3 | 11.2 | 10.8 | 7.5 | 9.1 |  | 1 | 0 | 45 |
| 79 | 13.7 | 14.2 | 13.7 | 11.1 | 12.4 |  | 11.1 | 1 | 0 | 58 |
| 80 | 15.1 | 10.4 | 12.5 | 9.5 | 10.3 | 9.1 | 9.5 | 1 | 0 | 51 |
| 81 | 13.5 |  | 12.3 | 11.8 | 7.7 | 9.6 |  | 1 | 0 | 59 |
| 82 | 11.7 | 12.5 | 12.9 | 10.4 |  | 5.7 | 7.3 | 1 | 0 | 49 |
| 83 | 12.1 |  | 10.8 | 13.5 | 13.2 |  | 11.4 | 1 | 0 | 55 |
| 84 | 8 | 8.6 | 10.2 |  | 7.6 | 7.4 | 2 | 1 | 0 | 32 |
| 85 | 13.3 | 10.4 | 8.9 | 10.4 | 9.3 |  | 8 | 1 | 0 | 45 |
| 86 | 12.5 | 10.3 | 7 | 8.4 |  | 8.7 | 5.5 | 1 | 0 | 47 |
| 87 | 11.3 | 10.8 | 11.9 | 9.4 |  | 8.3 | 10.1 | 1 | 0 | 49 |
| 88 | 8.8 | 13.5 | 5.7 |  | 6.4 | 3.6 | 6.5 | 1 | 0 | 47 |
| 89 | 9.9 | 11.5 |  | 10.6 | 11 | 10.4 | 8.7 | 1 | 0 | 49 |
| 90 | 14.9 | 10.8 |  | 11.3 | 12.8 | 11.5 | 7 | 1 | 0 | 48 |
| 91 | 13.8 | 10.4 |  | 10.6 |  | 6.1 | 7.5 | 1 | 0 | 51 |
| 92 |  | 10.5 | 13.2 | 11.1 | 8.5 |  | 9 | 1 | 0 | 49 |
| 93 |  | 10.2 | 10.7 | 11.9 | 9.4 | 9 | 8.9 | 1 | 1 | 46 |
| 94 | 17.4 |  | 17.1 | 15.4 |  | 11.6 | 13.5 | 1 | 1 | 64 |
| 95 | 11.2 |  | 10 | 7.6 | 8.5 | 8.2 | 5.8 | 1 | 1 | 37 |
| 96 | 15.7 | 15.5 | 11.8 | 11.7 | 10.9 | 11.5 | 12.4 | 1 | 1 | 52 |
| 97 | 9.7 | 11.1 | 13.6 | 13.8 | 12.4 | 7.1 | 7.3 | 1 | 1 | 46 |
| 98 | 8.7 | 10 | 9.9 | 10 | 9.9 | 7.7 |  | 1 | 1 | 40 |
| 99 | 13 | 10.3 |  | 9.3 | 6.5 | 8.2 | 4.4 | 1 | 1 | 43 |
| 100 |  |  | 12.1 | 13.9 | 9.2 | 7.9 | 9.4 | 1 | 1 | 52 |
| 101 | 14.4 | 12.1 | 13.2 |  |  | 10.5 | 7.1 | 1 | 1 | 54 |
| 102 | 11.8 | 14.8 | 10 | 12.6 | 10.4 | 11.2 | 10.9 | 1 | 1 | 50 |
| 103 | 15.4 |  | 17 | 13.4 | 12.6 | 10.2 | 10.6 | 1 | 1 | 53 |
| 104 | 13.7 | 15.2 | 12.2 | 14.6 |  | 9.9 | 9.4 | 1 | 1 | 57 |
| 105 | 11.6 |  | 5.5 |  | 5.4 | 10.7 | 6.4 | 1 | 1 | 41 |
| 106 |  | 14.2 | 11.3 |  | 9.2 | 9.5 | 8.5 | 1 | 1 | 48 |
| 107 | 12.9 | 12.8 | 14 | 10.9 | 13.5 |  | 11.7 | 1 | 1 | 61 |
| 108 |  | 11.3 | 8.5 | 11.3 | 8.9 | 9.2 | 9.1 | 1 | 1 | 39 |
| 109 | 11.6 | 12.2 | 12.2 | 12.9 | 9.9 | 9.3 | 9.8 | 1 | 1 | 42 |
| 110 | 13.3 | 16.3 | 12.5 |  | 13.7 | 9.1 |  | 1 | 1 | 57 |
| 111 |  | 10.1 |  |  |  | 7.9 |  | 1 | 1 | 52 |
| 112 | 15.4 | 16.3 | 14.6 | 13.4 | 13 | 9.3 | 11.5 | 1 | 1 | 45 |
| 113 | 13 | 10.8 | 12.2 |  | 8.7 | 10.5 |  | 1 | 1 | 54 |
| 114 | 16.2 | 12.1 | 13.2 | 10.6 | 10.3 |  | 8.1 | 1 | 1 | 49 |
| 115 | 17.5 | 14.5 | 13.2 | 14 | 13.2 | 13 |  | 1 | 1 | 60 |
| 116 | 14 | 11.3 | 11.9 | 9.3 | 9.3 | 11.2 | 8.5 | 1 | 1 | 49 |
| 117 | 14.4 | 12.6 | 14 | 12.1 | 10.7 | 10.6 | 10.4 | 1 | 1 | 48 |
| 118 | 16.1 | 17.5 | 10.8 |  | 8.3 |  | 8.8 | 1 | 1 | 54 |
| 119 | 16.7 | 12.9 |  | 10.3 |  | 8.2 | 8.1 | 1 | 1 | 54 |
| 120 | 15 | 11.4 | 7.2 | 14.4 | 9 | 7.9 | 10.4 | 1 | 1 | 52 |