138 BRAIN VOLUME CHANGE AND DISABILITY IN FINGOLIMOD TRIALS

Richard Nicholas,[1] Frederik Barkhof,[2] Jeffrey Cohen,[3] Ernst-Willhelm Radue,[4] Ludwig Kappos,[5] Dieter Häring,[6] Nikolaos Sfikas,[6] Philipp von Rosenstiel,[6] Gordon Francis[7]. *[1]Charing Cross Hospital, London; [2]VU University Medical Center Amsterdam, the Netherlands; [3]Cleveland Clinic Neurological Institute, Cleveland, OH, USA; [4]Medical Image Analysis Center, University Hospital Basel, Basel, Switzerland; [5]University Hospital Basel, Switzerland; [6]Novartis Pharma AG, Basel, Switzerland; [7]Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA*

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Objective Investigate relationships between Brain Volume (BV) loss and clinical and MRI outcomes observed in three phase 3 fingolimod trials.

Method Percentage BV change (PBVC) was measured in the core-phases and extensions of FREEDOMS, FREEDOMS II and TRANSFORMS using 'Structural Image Evaluation Normalization, of Atrophy'. During the core-phases, correlations were assessed between PBVC and: cumulative Gd+-lesion count (LC); T2-lesion volume change (LVC);new/enlarging T2-LC; T1-hypointense LVC; number of confirmed relapses; EDSS score change; and MSFC score change.

Proportions of patients with 3- or 6-month confirmed disability progression (CDP) and correlations between PBVC and EDSS were determined.

Results In FREEDOMS, FREEDOMS II and TRANSFORMS, PBVC consistently correlated best with cumulative Gd+-LC ($p<0.0001$), new/enlarging T2-LC ($p<0.0001$) and number of confirmed relapses ($p<0.005$). PBVC correlated with EDSS and MSFC in FREEDOMS ($p<0.001$), and with MSFC in FREEDOMS II ($p=0.016$). In combined study data PBVC correlation with EDSS strengthened over time (month 48, $p=0.0001$). Stronger correlation was seen in patients with 3- or 6-month CDP (month 48, $p<0.0001$).

Conclusion BV loss was greatest in patients who relapsed or who developed new Gd+ or T2-lesions. By reducing BV loss, fingolimod may slow disability progression.