# Case report: Use of Fingolimod in an Hispanic MS pediatric patient.

*Yatzka G. Hernández MD.[2], Eduardo R. Estades MD[1,2,] Angel R. Chinea MD.[2] ,*

*Ivonne Vicente, MD. [2] , Christina Rubi[2] , Vanessa Jimenez, RN[2]*

Christiana Care Health System, Delaware[1], San Juan MS Center-Caribbean Center for Clinical Research, Puerto Rico[2]

achinea@me.com, yhernandezmd@gmail.com

## Case Presentation

A 10 year old girl presented to a community hospital emergency room with dizziness, dysconjugate gaze, bilateral nystagmus, R hemifacial paralysis and bilateral blurry vision. The patient denied loss of vision, consciousness, fecal nor urine incontinence. An MRI was performed which showed one (1) FLAIR inflammatory lesion (figure 1). She was diagnosed with Acute Demyelinating Encephalomalacia (ADEM) and treated with 5 day course of 1g IV steroids. CSF was also obtained (Figure 4) She had complete resolution of all her symptoms at discharge. The patient had no prior CNS infection and her vaccination status was up to date.

Her follow up consisted of serial MRI´s every 6 months with a pediatric neurologist. At 2 years post hospitalization, she developed 3 new gadolinium (GAD) enhancing lesions (Figure 2). She did not have any recurring or new symptom. Her physical examination was unremarkable. Her diagnosis was changed from ADEM to Multiple Sclerosis (MS). Interferon beta 1-α at a 1 dose/week regimen was started and instructed to continue with MRI + GAD surveillance every 6 months. The patient continued treatment for 2 more years when 2 GAD enhancing lesions on prior plaques appeared (figure 3). She continued to deny any new nor recurring symptoms.

She sought a second opinion with a neurologist specialized in MS for other treatment options. The decision was made to try Fingolimod (FTY) 0.5 mg at every other day dose regimen. Her EDSS score at presentation was 1.5 because an increase knee reflex (3+) and positive Romberg with her eyes closed.

The patient has been followed for 2 years. Her MRI FlAIR lesion burden is unchanged (figure 2-3). She has reported occasional headaches after she started the medication, but the headaches have since subsided. Her lab work (CBC, CMP, UA, TSH,) have consistently been unremarkable. She has had 3 MRI since starting FTY. Her MRIs do not show any GAD enhancing lesions and previous T2/Flair lesions have decreased in signal intensity correlating with decreased inflammation. At 2 years follow up, her EDSS score has decreased to 1.

## MRI Imaging

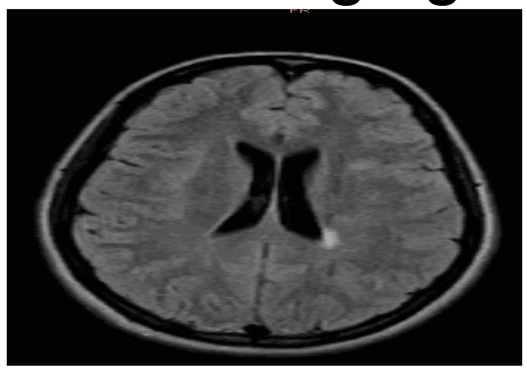


Figure 1. Single FLAIR lesion that suggested ADEM. 1999

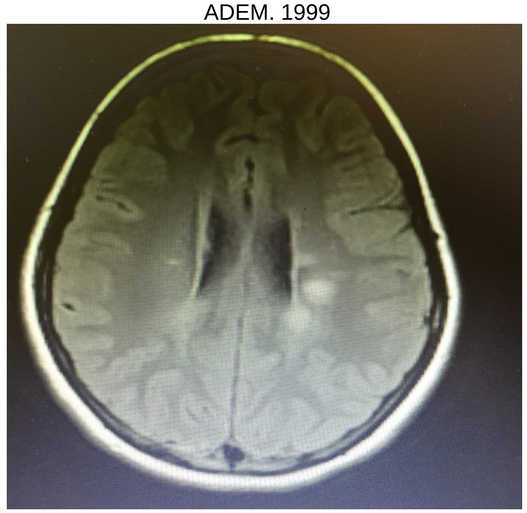


Figure 2. Brain MRI June, 2013

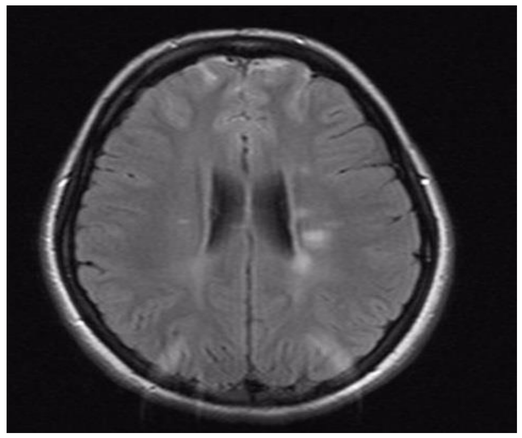


Figure 3. Brain MRI June, 2015

## Discussion

This patient's case is interesting considering she never presented with a recurrent or new symptom when she developed positive GAD enhancing lesions. Initial diagnosis of ADEM was questionable because she had no prior documented infection[1]. She also did have positive oligoclonal bands (Figure 4). The patient later developed new lesions in the following years. These new lesions occurred years after the initial event making *Recurrent ADEM* less likely. At this point, the diagnosis of Clinical Isolated Syndrome (CIS) should be considered. She fit the diagnosis of multifocal CIS because of multi-symptomatic presentation. She was diagnosed as Pediatric multifocal CIS, a variant of pediatric MS.

The patient had failed interferon therapy and we did not consider any other interferon therapy. FTY was chosen because of its easy route of administration, safety and efficacy in hispanic adults with MS[2].

The patient tolerated the medication and has been on therapy for almost 2 years. She has had a 0.5 point reduction in her EDSS score with improvement in her increased knee reflex.

Disclosure: Dr. Angel Chinea is member of the advisory board and speaker for Novartis, Biogen, Teva, Allergan & Genzyme. None of the authors received any grants or monetary compensation.

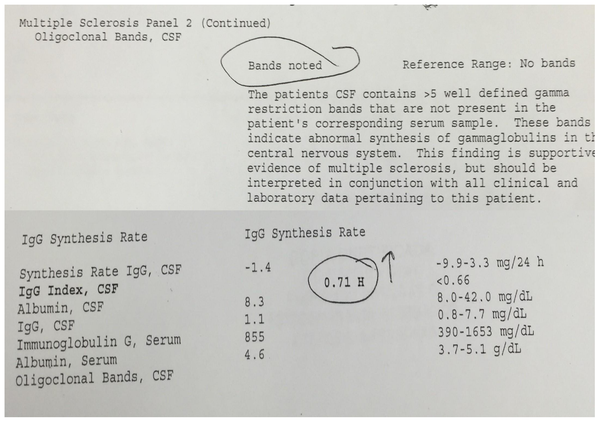
## Conclusions

In patients with ADEM it is important to continue radiologic follow up to monitor for progression to MS. Early diagnosis of MS and treatment will change the course of the disease and decrease the chance of progression.

FDA disease modifying therapies (DMTs) for pediatric patients are not available. This case demonstrates that early intervention with aggressive therapies will curb the progression of this debilitating neurodegenerative disease.

This patient is an example of FTY responder with MRI as our clinical marker.

This case study should serve as an example that this therapies can be tolerable in pediatric population. Nonetheless, more clinical research regarding safety and tolerability is needed.



Multiple Sclerosis Panel 2 (Continued)
Oligoclonal Bands, CSF

Bands noted — Reference Range: No bands

The patients CSF contains >5 well defined gamma restriction bands that are not present in the patient's corresponding serum sample. These bands indicate abnormal synthesis of gammaglobulins in t central nervous system. This finding is supportive evidence of multiple sclerosis, but should be interpreted in conjunction with all clinical and laboratory data pertaining to this patient.

| | IgG Synthesis Rate | |
|---|---|---|
| IgG Synthesis Rate | | |
| Synthesis Rate IgG, CSF | -1.4 | -9.9-3.3 mg/24 h |
| **IgG Index, CSF** | 0.71 H | <0.66 |
| Albumin, CSF | 8.3 | 8.0-42.0 mg/dL |
| IgG, CSF | 1.1 | 0.8-7.7 mg/dL |
| Immunoglobulin G, Serum | 855 | 390-1653 mg/dL |
| Albumin, Serum | 4.6 | 3.7-5.1 g/dL |
| Oligoclonal Bands, CSF | | |

Figure 4. CSF profile 1999

## Bibliography

1.Consensus definitions proposed for pediatric multiple sclerosis and related disorders.

2. Efficacy and Safety of Fingolimod in Hispanic Patients with Multiple Sclerosis: Pooled Clinical Trial Analyses; Angel R Chinea Martinez, Jorge Correale • Patricia K. Coyle, Xiangyi Meng, Nadia Tenenbaum. Adv Ther. 2014;31(10):1072-1081

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