Comparison of Clinical Disease Expression of Multiple Sclerosis between Hispanics and non-Hispanics patients

Silvia Delgado, MD, Athena Hadjixenofontos, BSc, Clara P. Manrique, MD, Melissa Ortega, MD, Ashley H. Beecham, M.S., Leticia Tornes, MD, Margaret A. Pericak-Vance, PhD, Kottil Rammohan, MD and Jacob L. McCauley, PhD.

UNIVERSITY OF MIAMI
MILLER SCHOOL OF MEDICINE
HUSSMAN INSTITUTE for HUMAN GENOMICS

Introduction

▪Characterization of the clinical disease in the non-Caucasian patients with multiple sclerosis (MS) and the genetics associated with the differential expression can shad light on the understanding of the immunopathogenesis of this disorder.

▪Information about clinical characteristics and differences between Hispanics and non-Hispanics patients is only beginning to be understood.

Objectives/Methods

▪To compare Hispanic white (HW) and non-Hispanic white (NHW) MS patients on a number of the clinical features and initial presentation of MS in South Florida

▪This is a cross-sectional study of consecutive consenting self-reported Hispanic patients seen at the University of Miami outpatient clinic.

▪A detailed race/ethnicity history was established spanning three generations.

Results

▪HW (n=289) and NHW (n=278) MS cases were ascertained through the MS clinic serving the greater Miami area and through patient outreach efforts in the same geographical area.

HW Sample Origin	N (%)
Caribbean	140 (49)
USA/Canada	95 (33)
South American	35 (12)
Central American	13 (5)
Mexican	2 (<1)
Other	2 (<1)

Sex	HW N (%)	NHW N (%)
Female	235 (81)	219 (79)
Male	54 (19)	59 (21)

▪There is no statistical difference in the sex ratio in HW when compared to NHW.

MS Disease Course
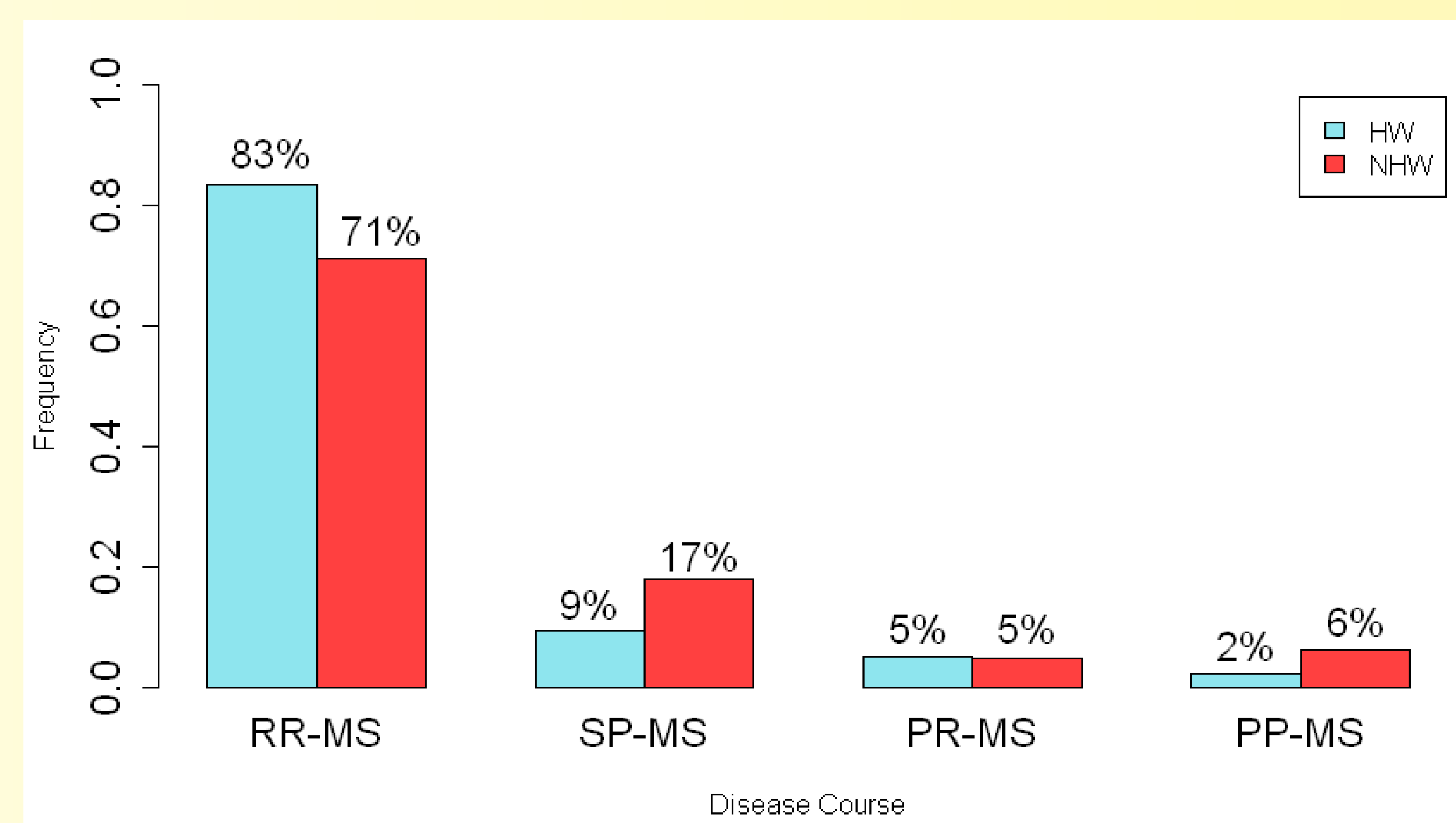
▪Higher percent of Hispanic white patients had RR-MS compared to non-Hispanics (p<0.01) but this was not statistically significant when adjusted for age at exam.

	HW (mean ± se.)	NHW (mean ± se.)
Age at onset (years)	33.42 ± 0.62	34.78 ±0.61
Age at diagnosis (years)	37.83 ± 0.67	40.37 ± 0.62
Diagnostic lag (years)	4.31 ±0.41	5.58 ±0.48

▪HW (n=286) appear to be diagnosed earlier than NHW cases (n=276) after adjustment for age at exam (p=0.04).

Location of symptoms at onset	HW (%)	NHW (%)
Brainstem	16	14
Optic Neuritis	16	19
Long Tract Sensory	47	50
Long Tract Motor	21	19
Spinal Cord	32	27
Cognitive	3	2
Cerebellar	8	7

▪HW individuals and NHW initially present with similar symptoms.

▪Sensory deficits and spinal cord symptoms were the most common MS initial presentation in both groups.

Categorical Distribution of EDSS of HW/ NHW patients
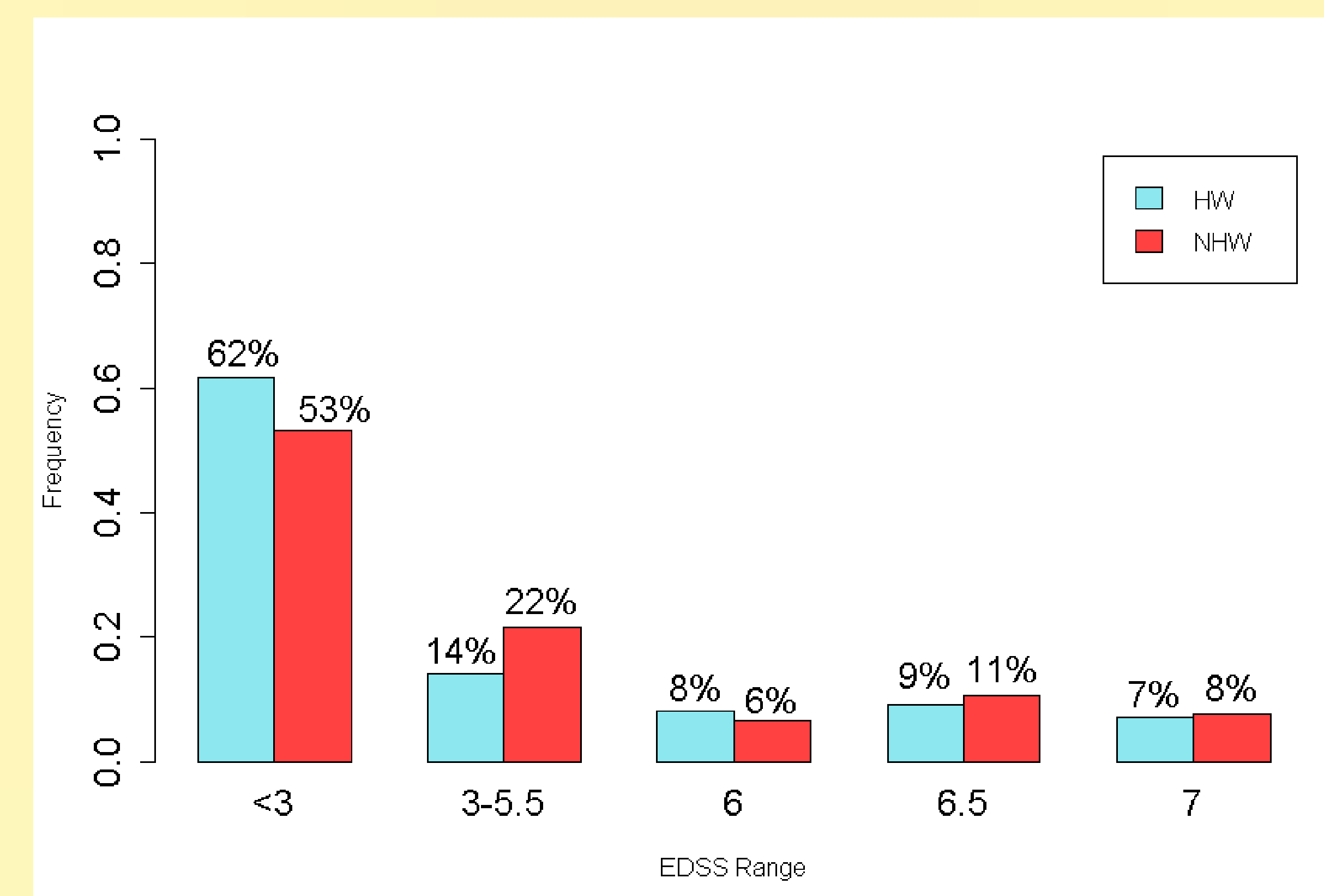
▪Higher proportion of HW patients have minimal disability (EDSS <3) compared to NHW but it is not statistically significant when adjusted for disease duration.

▪No difference in ambulatory disability between ethnicity groups (EDSS ≥6)

|	HW (n=201)	NHW (n=198)
MSSS (mean ± SE)	4.16 ± 0.20	3.88 ± 0.20

▪There are no significant differences in the MSSS score between HW and NHW patients.

Symptoms during course of illness	HW (%)	NHW (%)
Internuclear Opthalmoplegia	9	6
Motor weakness*	85	91
Sensory disturbance	94	97
Ataxia*	70	79
Bladder disturbance*	62	73
Bowel disturbance	45	44
Myelopathy	48	46
Visual Loss (Yes v. No)	36	41
Visual Loss (Bilateral v. Unilateral)	38	26

▪Fewer HW appear to present the symptoms tested during the course of illness.

▪Motor weakness, ataxia and bladder disturbance were statistically significantly prior to adjustment for age at exam.

Comorbidity with ATM and ON	HW (%)	NHW (%)
Acute Transverse Myelitis	16	9
Optic Neuritis	36	41
Optic Neuritis (bilateral)	27	20

▪Comorbidity of MS with ATM is more frequent in HW but this is not statistically significant when adjusted for site of ascertainment.
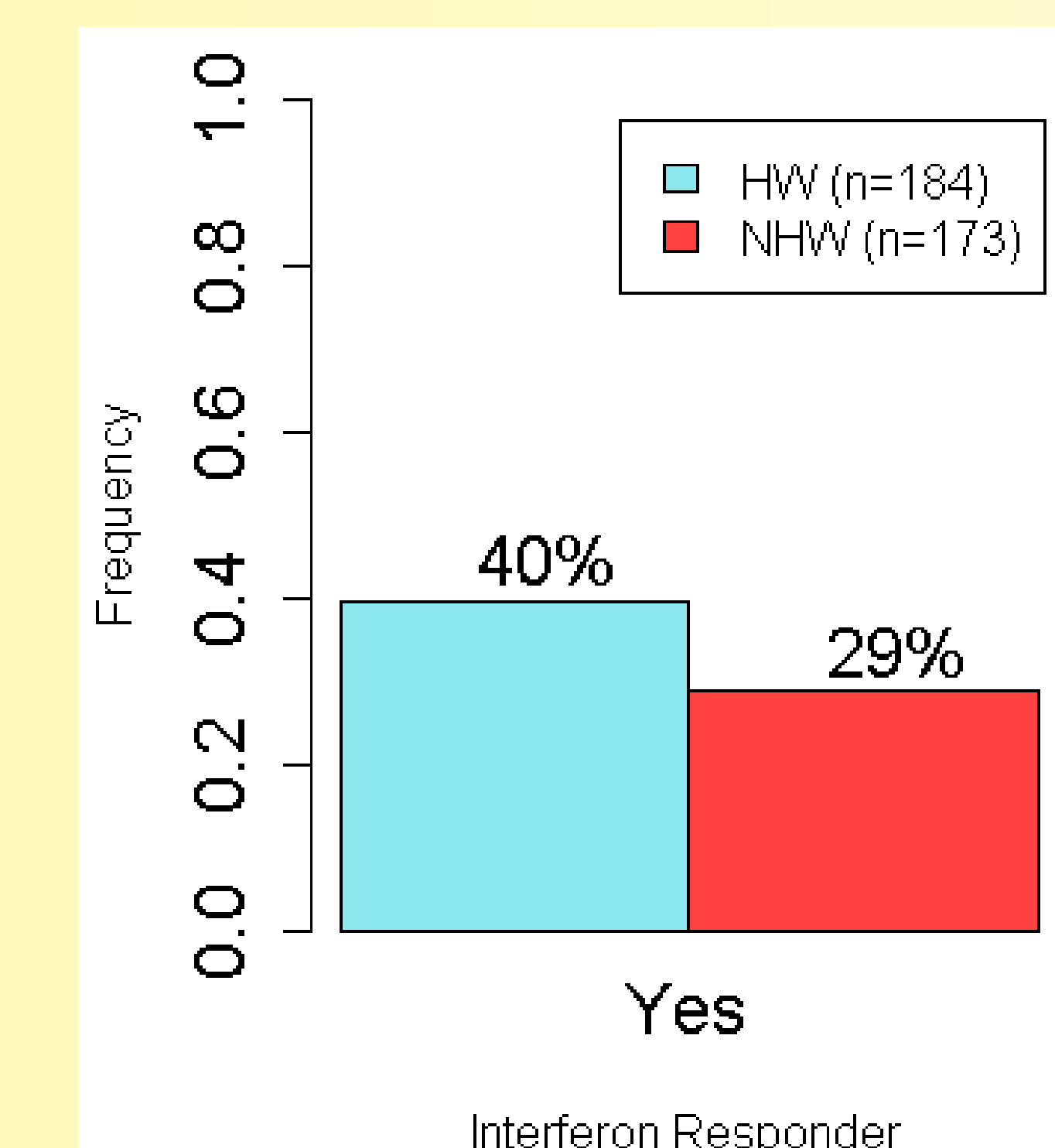
▪A significantly higher proportion of Hispanic white patients respond to interferon treatment when compared to non-Hispanic white patients (40% vs 29%; p=0.04).

▪This association remains significant after adjustment for diagnostic lag, ascertainment site, disease course and age at onset (p=0.005).

Effect of Country of Birth on Age at Onset and Age at Diagnosis in HW
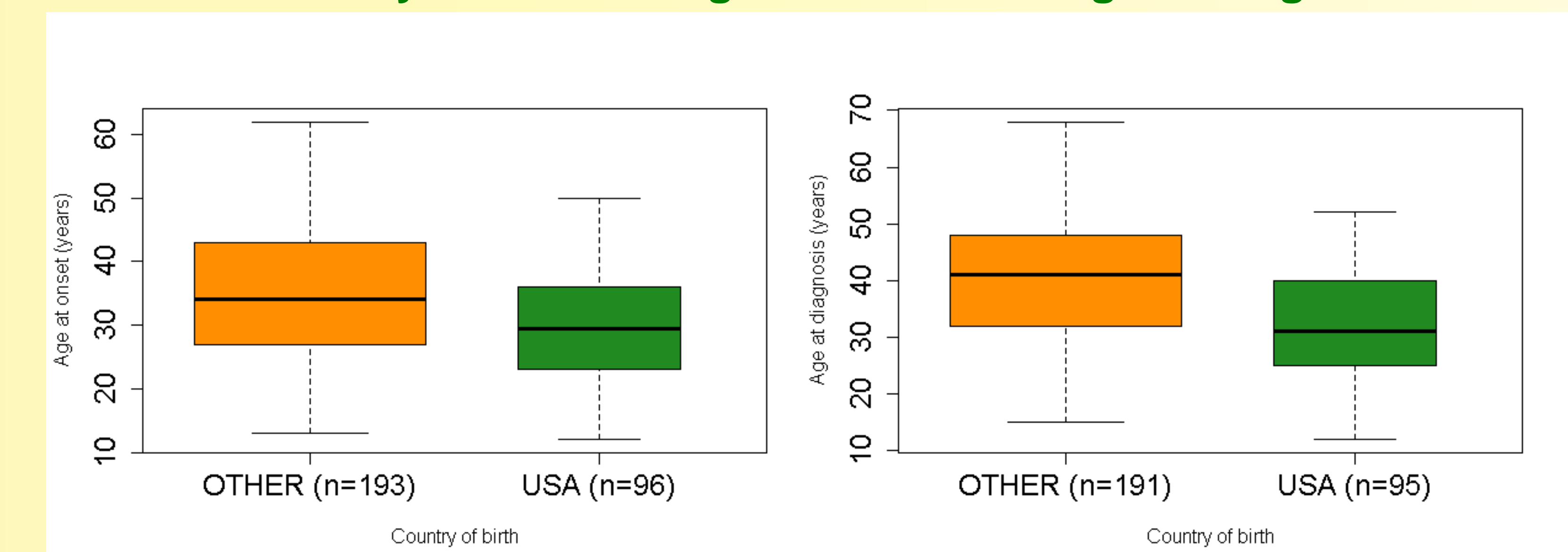
▪HW patients born in the USA have a significantly earlier Age at Onset (29.21±0.90) compared to HW patients born outside the USA (35.52±0.78) after adjustment for site of ascertainment (p<0.001)

▪HW patients born in the USA have a significantly earlier Age at Diagnosis (31.96±0.95) compared to HW patients born outside the USA (40.75±0.80) after adjustment for site of ascertainment (p<0.001)

Conclusions

▪HW MS patients of predominant Caribbean origin in South Florida, appear to be diagnosed earlier than their NHW counterparts.

▪HW MS patients born in the USA have both a significantly earlier Age at Onset and Age at Diagnosis compared to HW MS patients born outside the USA.

▪This could be an result of differences in socioeconomic status.

▪Frequency of ATM and ON is similar in both groups.

▪Ethnicity is not a predictor of disease progression or ambulatory disability.

▪ HW MS patients may respond better to interferon treatment when compared to NHW patients.

References

▪ Amezcua L et al. MSJ 2011; DOI: 10.1177/1352458511403025.

▪ Cree BA et al.. Neurology 2004;63:2039-2045.

▪ Cabrera-Gomez JA et al. Rev Neurol 1998; 26(153):723-728