

# Primary biliary cholangitis (PBC)-autoimmune hepatitis (AIH) overlap syndrome: Characteristics and response to obeticholic acid (OCA) in TARGET-PBC, a diverse, large United States (US) real-world cohort



**TARGET**  
PharmaSolutions

Marlyn J. Mayo<sup>1</sup>, Christopher L. Bowlus<sup>2</sup>, Elizabeth J. Carey<sup>3</sup>, Ester C. Little<sup>4</sup>, Karen Deane<sup>5</sup>, Richard Zink<sup>5</sup>, Robert Sandefur<sup>5</sup>, W. Ray Kim<sup>6</sup>, Cynthia Levy<sup>7</sup>

<sup>1</sup>Division of Gastroenterology and Hepatology, University of Texas Southwestern, Dallas, TX; <sup>2</sup>Division of Gastroenterology and Hepatology, University of California Davis, Sacramento, CA; <sup>3</sup>Division of Gastroenterology and Hepatology, Mayo Clinic, Phoenix, AZ; <sup>4</sup>Division of Gastroenterology and Hepatology, Advanced Liver Disease and Transplant Institute, Banner- University of Arizona, Phoenix, AZ; <sup>5</sup>TARGET PharmaSolutions, Inc., Chapel Hill, NC; <sup>6</sup>Division of Gastroenterology and Hepatology, Stanford University Medical Center, Stanford, CA; <sup>7</sup>Division of Gastroenterology and Hepatology, University of Miami, Schiff Center for Liver Diseases, Miami, FL

## INTRODUCTION

- A subset of patients with primary biliary cholangitis (PBC) have an overlap syndrome with autoimmune hepatitis.
- Patients with overlap syndrome may have a poorer response to ursodeoxycholic acid (UDCA) and higher rates of progression to cirrhosis.
- The aim of this study was to compare clinical characteristics and outcomes in PBC patients with and without overlap syndrome.

## METHODS

### Cohort

- TARGET-PBC is an ongoing longitudinal, observational cohort of patients with PBC managed according to local practice standards at 35 academic and community sites in the United States.
- Participating clinics provided redacted medical records (structured and unstructured data) from consented patients. Patient narratives, laboratory, pathology, and imaging data were extracted and stored in a secured database. Patient reported outcome (PRO) measures were also collected approximately every 6 months. Patients contributed blood samples to a biospecimen repository for biomarker validation and translational research.

### Study Population

- The study population included 532 patients enrolled in TARGET-PBC between November 9, 2016 and February 14, 2019.

### Outcome Measure

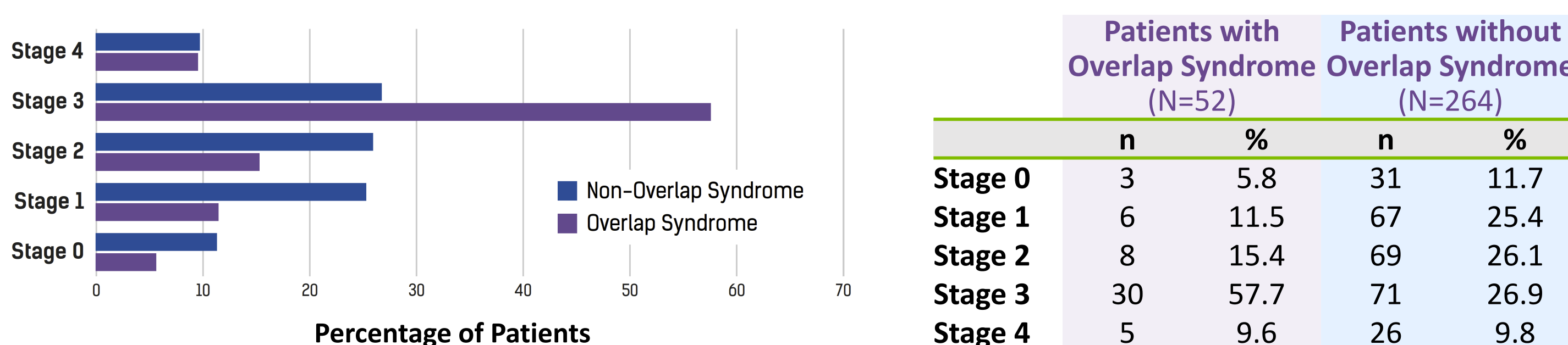
- The presence of overlap syndrome was ascertained from the time of enrollment through February 14, 2019 or in the three years prior to enrollment.

### Statistical Analysis

- The percentage of clinical characteristics among patients with PBC was calculated and compared among patients with and without the presence of overlap syndrome. Chi squared and t tests were used to assess the difference in proportions and means respectively.

## RESULTS

**Figure 1. Distribution of fibrosis stage among patients with PBC by presence of overlap syndrome**



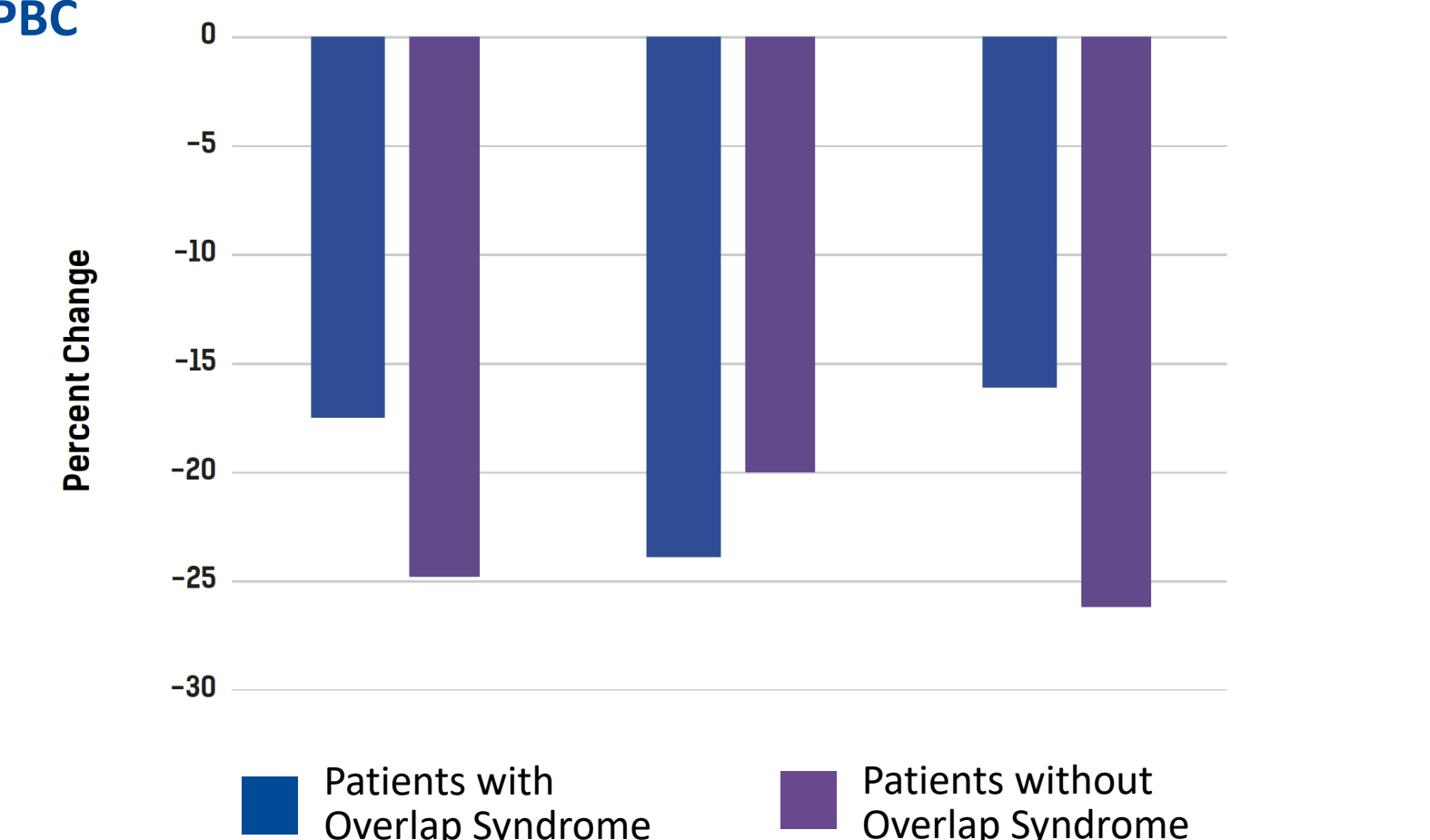
Overlap Syndrome: 32% of staging is missing. Non Overlap Syndrome: 42% of staging is missing.

**Table 1. Descriptive characteristics**

Patient Characteristics	Patients with Overlap Syndrome (N=76)		Patients without Overlap Syndrome (N=456)	
	Mean (SD)	Mean (SD)	N (%)	N (%)
Age at Study Entry	57.7 (11.8)	61.0 (11.2)		
Age at Diagnosis	51 (13.0)	52 (11.1)		
Gender				
Female	66 (86.8)	412 (90.4)		
Not Available	-	-		
Race				
White	56 (73.7)	388 (85.3)		
Black	7 (9.2)	19 (4.2)		
Other	7 (9.3)	18 (3.9)		
Not Available	6 (7.9)	30 (6.6)		
Ethnicity				
Hispanic or Latino	16 (21.1)	76 (16.7)		
Not Available	6 (8.0)	23 (5.0)		
Cirrhosis				
Yes	39 (51.3)	170 (37.3)		
Not Available	-	-		
Decompensation				
Yes	21 (27.6)	80 (17.5)		
Not Available	37 (48.7)	286 (62.7)		
≥1 Autoimmune Condition	41 (54.67)	93 (59.9)		
Liver Biopsy	58 (76.3%)	28 (62.7%)		
Not Available	-	-		
Current Treatment*				
UDCA Only	33 (43.4)	311 (68.2)		
UDCA, OCA (including Fenofibrate, Immunosuppressant)	10 (13.2)	65 (14.3)		
OCA only	-	3 (0.7)		
Not Available	2 (2.6)	14 (3.1)		
Interface Hepatitis				
Yes	37 (60.5)	76 (16.7)		
Not Available	30 (39.5)	286 (62.7)		
Positive Antibody Test				
Antimitochondrial	51 (67.1)	351 (77.0)		
Not Available	6 (7.9)	57 (12.5)		
Antinuclear	35 (46.1)	101 (22.1)		
Not Available	27 (35.5)	240 (52.6)		
Smooth Muscle	18 (23.7)	39 (8.6)		
Not Available	38 (0.50)	271 (59.4)		

\* Other combination of UDCA, Fenofibrate, Immunosuppressants not shown

**Figure 2. Percent change in liver enzyme levels among patients currently on OCA by presence of overlap syndrome among patients with PBC**



	Alkaline Phosphatase	AST	ALT
Patients with Overlap Syndrome	-17.5 (SD:23.5)	-24.0 (SD:30.51)	-16.2 (SD:36.78)
Patients without Overlap Syndrome	-24.8 (SD:31.1)	-20.0 (SD:30.31)	-26.2 (SD:33.48)

## CONCLUSIONS

- AIH overlap was diagnosed in 14% of this cohort.
- Overlap patients were more likely to have antinuclear and smooth muscle antibodies, interface hepatitis, and advanced fibrosis, but were otherwise similar to PBC patients.
- OCA was administered to 10 overlap patients with safety and efficacy comparable to PBC patients.

### ACKNOWLEDGEMENTS:

TARGET-PBC is a study sponsored by Target PharmaSolutions (TPS). TPS is a real-world clinical data company based in Durham, NC. The authors would like to thank all the investigators, participants and research staff associated with TARGET-PBC. ClinicalTrials.gov Identifier: NCT02932449

Disclosures: *Clinical Trial Agreements:* Cymabay Therapeutics, Intercept Pharmaceuticals, Mallinckrodt Pharmaceuticals, Salix Pharmaceuticals, Target PharmaSolutions, Glaxo Smith Kline

*Advisory/Consulting Agreements:* Cymabay Therapeutics, Target PharmaSolutions, Cara Diagnostics, Regeneron Pharmaceuticals, Glaxo Smith Kline