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DUPIXAM: An Algorithm to Identify Patients with Atopic Dermatitis among Dupilumab-Treated Population Using the SNDS (Système National des Données de Santé)

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CONTEXT AND OBJECTIVES

- On March 5th, 2019, dupilumab was granted reimbursement in France to treat adult patients with moderate-to-severe atopic dermatitis (AD), who were intolerant, contraindicated or failed a treatment with cyclosporine (CyA).
- In this context, Sanofi, upon request from the French HAS, conducted two studies in parallel in order to characterize French adult patients who were treated with dupilumab for moderate-to-severe AD and their conditions of prescription.
- The first study called MOVE was an observational, multicenter, cross-sectional study conducted between 2019 and 2021 that included 628 patients in about 30 centers.
- The second study called DUPIXAM was an SNDS (Système National des Données de Santé - exhaustive claims database including 99.8% of patients treated within the national healthcare system) study on all patients who initiated a treatment with dupilumab 300mg for AD between 2019-2020. Nevertheless, dupilumab had also been granted indications in severe asthma and chronic rhino-sinusitis with nasal polyps (CRSwNP), and the SNDS did not allow to identify the diagnosis in outpatient settings, the indication for which the treatment with dupilumab was prescribed did not figure in the database. Therefore, an algorithm was developed, with the objective to identify specifically patients with AD in DUPIXAM.
- An innovative linkage process with the MOVE study was used at last to validate the robustness of the DUPIXAM algorithm.

METHODS

- A total of 5,436 patients (shown in Figure 1) were found in the SNDS database to have received at least one dose of dupilumab 300mg. Among them, 133 patients aged less than 18 years and 1,403 patients who received their first prescription of dupilumab before March 5th, 2019 (release date of the *Journal Officiel* marking the first day dupilumab was officially on the market) were excluded of the analysis. Therefore, 3,900 patients aged 18+ with ≥1 dupilumab 300mg delivery after March 5th, 2019, were analyzed.
- The first step of the indication identification was to identify AD, asthma or CRSwNP markers through pharmacy, specialist consults and inpatient diagnosis coding found in the 10 years before starting dupilumab. The second step in the algorithm consisted in screening markers of the three diseases of interest in the single previous year; this allowed to identify moderate-to-severe AD patients among patients who presented both AD and asthma or CRSwNP markers.
- Finally, in order to determine whether patients had moderate-to-severe AD or severe asthma among those with markers of both diseases in the previous year, systemic treatment was investigated: methotrexate, mycophenolate mofetil, azathioprine and cyclosporine were defined as AD-specific treatments and mepolizumab, benralizumab and omalizumab as asthma-specific. At last, among patients treated with both omalizumab and cyclosporine, the frequency of AD-specific markers was investigated in order to find the last remaining AD patients.

RESULTS

- A total of 3,216 patients were found to be treated with dupilumab for AD. The first step of identification, in the past 10 years, showed that 846 only presented markers of AD. Then, among patients who presented markers of multiple diseases of interest, in the previous year, 1,399 showed markers of AD only, and 971 other patients were identified through a third screening of systemic treatments (i.e., methotrexate, mycophenolate mofetil, azathioprine and cyclosporine for AD) and a second round of screening, more thorough, of AD markers (i.e., more than 5 deliveries of topical corticosteroids, hospitalization of AD, phototherapy).
- The linkage of DUPIXAM with MOVE through the variables displayed in Table 1 showed a sensibility of the algorithm at 92.1%.

Figure 1: Inclusion of patients in the DUPIXAM study

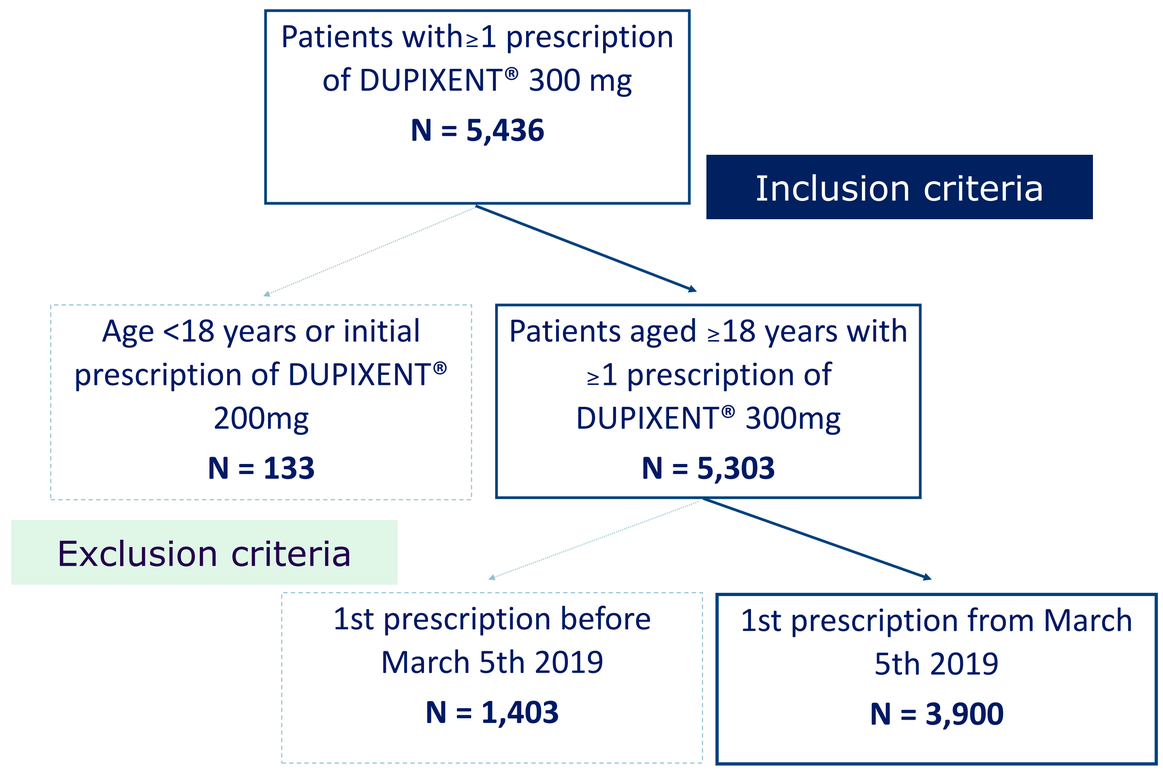

Figure 2: Flow-chart of patients treated with dupilumab for AD

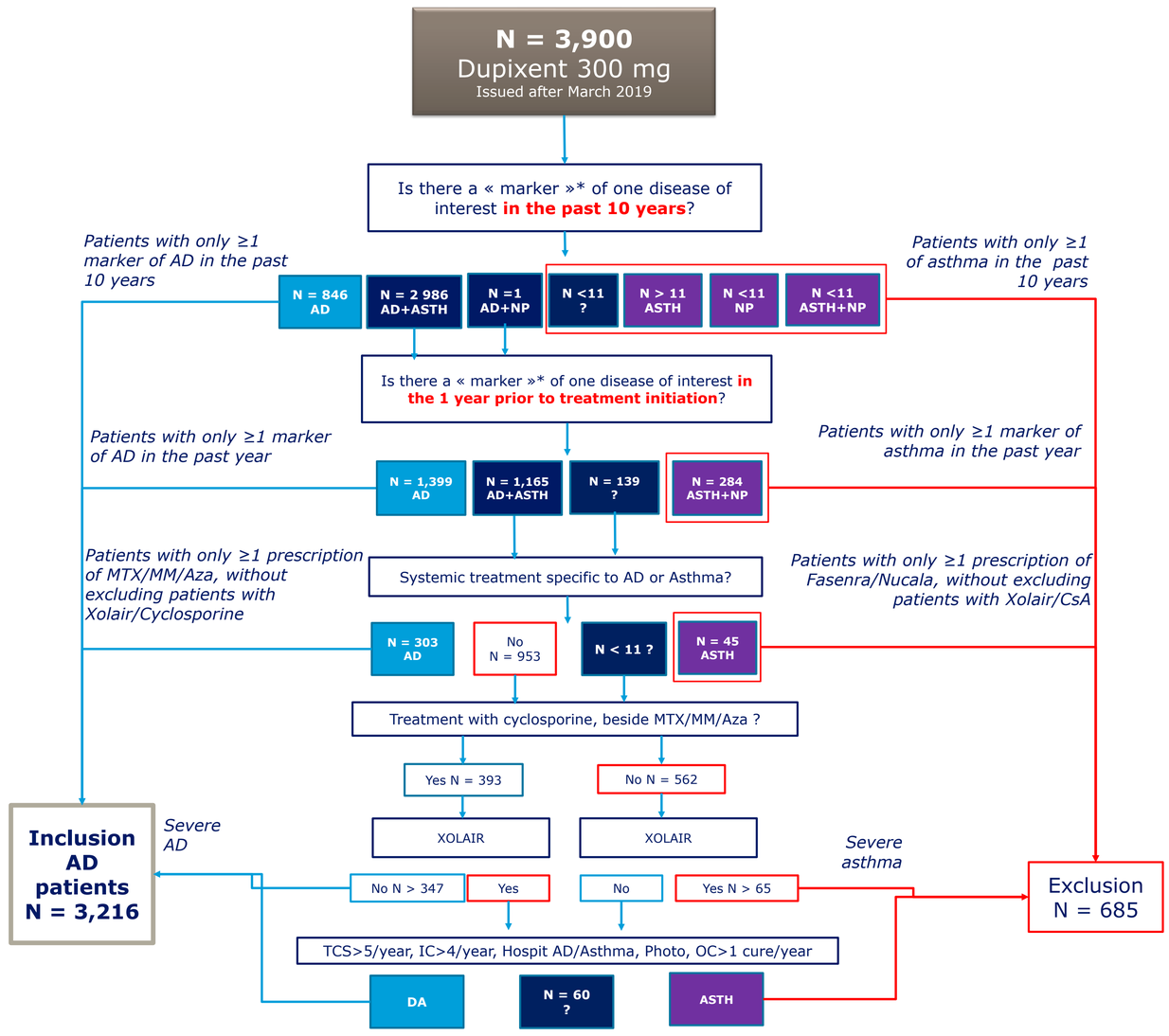

Table 1: Linkage variables between MOVE and DUPIXAM

Letter	Name of variable	Description	Study
S	SEXBIRTH_MONTH YEAR	Code gender + month of birth	MOVE
		Code gender + month and year of birth	DUPIXAM
E	ENROLMENT	Date of inclusion in MOVE	MOVE
		Date of outpatient or inpatient consult	DUPIXAM
L	SITEDPT	Department of investigation center	MOVE
		Department of inpatient/ outpatient center	DUPIXAM
D	DUPIX	Date of first injection of dupilumab	MOVE
		Date of delivery of dupilumab	DUPIXAM
C	CICLOSPORIN	Date of interruption of ciclosporin	MOVE
		Date of last delivery of ciclosporin	DUPIXAM

CONCLUSION

The algorithm developed to identify patients with atopic dermatitis in DUPIXAM showed good robustness and sensibility, with more than 92% of patients identified as treated for AD by the algorithm linked in the MOVE study. This is the first time a method was proven robust and innovative to find AD patients in the French SNDS.

DISCLOSURES Noémie ALLALI, Anne-Lise VATAIRE and Claire THENIE are Sanofi employees and may hold shares and/or stock options in the company. Emmanuel OGER has declared taking part in an advisory board with Novartis. This study was funded by Sanofi.

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