

Lifestyle and dietary habits as predisposing factors for the onset and progression of CIDP: a case-control study from the Italian CIDP database

Doneddu PE (1), Cocito D (2), Santoro L (3), Fazio R (4), Filosto M (5), Mazzeo A (6), Jann S (7), Cortese A (8), Beghi E (9), Carpo M (10), Clerici M (11), Luigetti M (12), Lauria G (13), Fierro B (14), Antonini G (15), Briani C (16), Cavaletti G (17), Rosso T (18), Benedetti L (19), Marfia G (20), Liberatore G (1), Peci E (2), Manganelli F (3), Velardo D (4), Todeschini A (5), Toscano A (6), Verrengia EP (7), Piccolo L (8), Nobile-Orazio E (1)

(1)Milan University, IRCCS Humanitas Clinical and Research Center, Milan, Italy; (2)Città della Salute e della Scienza Hospital, Torino, Italy; (3)Università degli Studi di Napoli "Federico II", Napoli, Italy; (4)IRCCS San Raffaele Hospital, Milan, Italy; (5)University of Brescia, Spedali Civili Hospital, Brescia, Italy; (6)Azienda Ospedaliera Universitaria "G. Martino," Messina, Italy; (7)Niguarda Cà Granda Hospital, Milan, Italy; (8)IRCCS Fondazione Mondino, Pavia, Italy; (9) IRCCS Mario Negri Institute, Milan, (10)Treviglio Hospital, Treviglio, Italy; (11)Fondazione Macchi Hospital, Varese, ITA; (12)Università Cattolica del Sacro Cuore, Roma, Italy; (13)IRCCS Carlo Besta Neurological Institute, Milan, Italy; (14)Azienda Ospedaliera Universitaria Policlinico Paolo Giaccone, Palermo, Italy; (15)Sant'Andrea Hospital, University of Rome, Rome, Italy; (16)Università di Padova, Padova, Italy (17)Milano Bicocca University, Monza, Italy; (18)Azienda UL.SS. 8 Asolo, Castelfranco Veneto, Italy; (19)Ospedale Sant'Andrea, La Spezia, Italy; (20)Policlinico Tor Vergata, Roma, Italy;

Background: Only few studies investigated the frequency of antecedent events and comorbidities in patients with chronic inflammatory demyelinating polyradiculoneuropathy (CIDP), and little is known on the role of possible predisposing factors, dietary, and lifestyle habits, on the onset and progression of the disease.

Aim: to determine the frequency of antecedent events and comorbidities and the possible role of predisposing factors, including lifestyle and dietary habits and exposure to toxic agents, on disease onset and progression

Methods: We used the data from a web-based database on Italian patients with CIDP. Lifestyle factors, dietary habits, and sociodemographic variables were collected using a structured questionnaire. Frequency and type of antecedent events and comorbidities were assessed. Partners of patients served as controls. Impairment was evaluated using the MRC sumscore and disability with INCAT and R-ODS scales. Logistic regression was used to calculate odds ratio (OR) with 95% confidence interval (CI) for the risk of CIDP. Sex and disease-duration were included as covariates.

Results: By October-2017, 454 patients were enrolled, with complete data on 434 patients for antecedent events and comorbidities and 295 patients and 273 controls for lifestyle habits.

Antecedent events and comorbidities

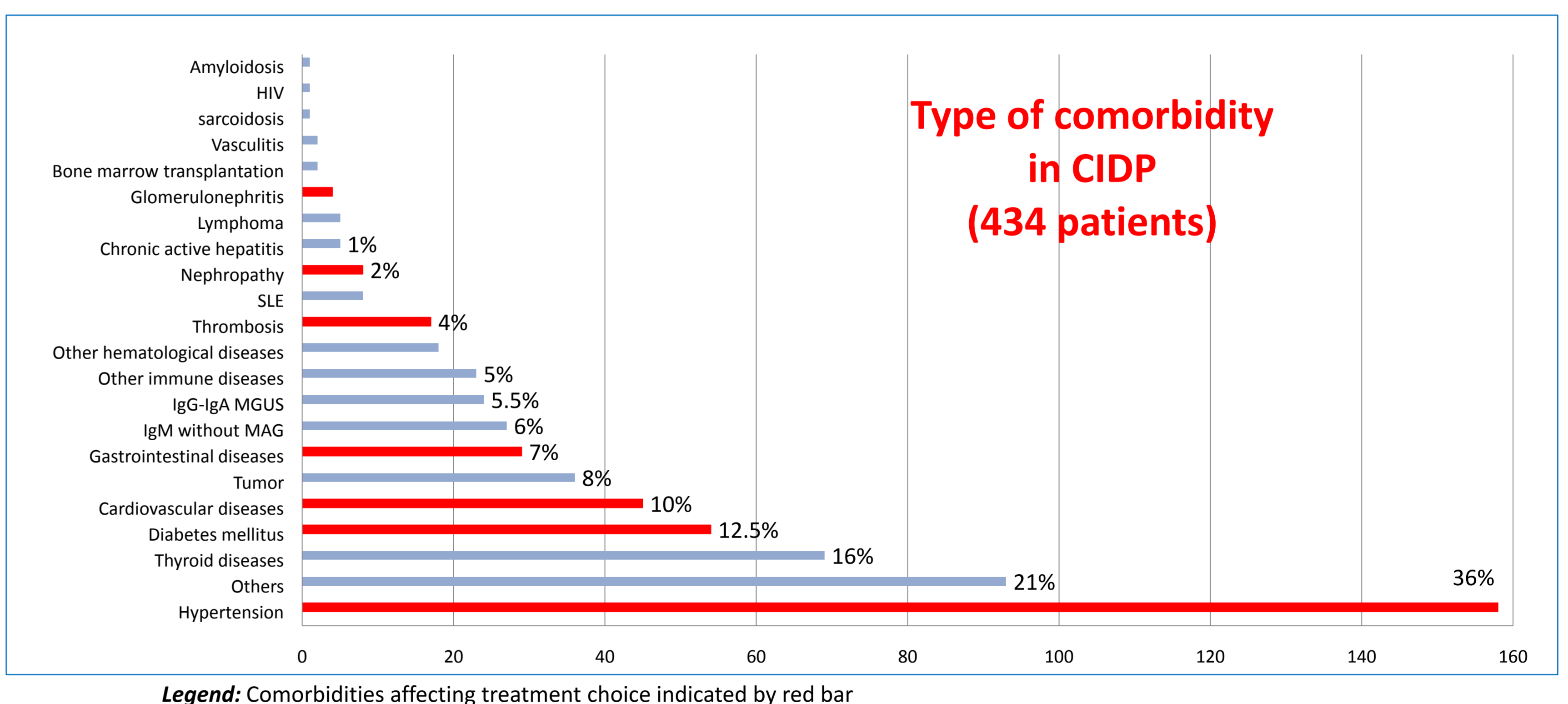
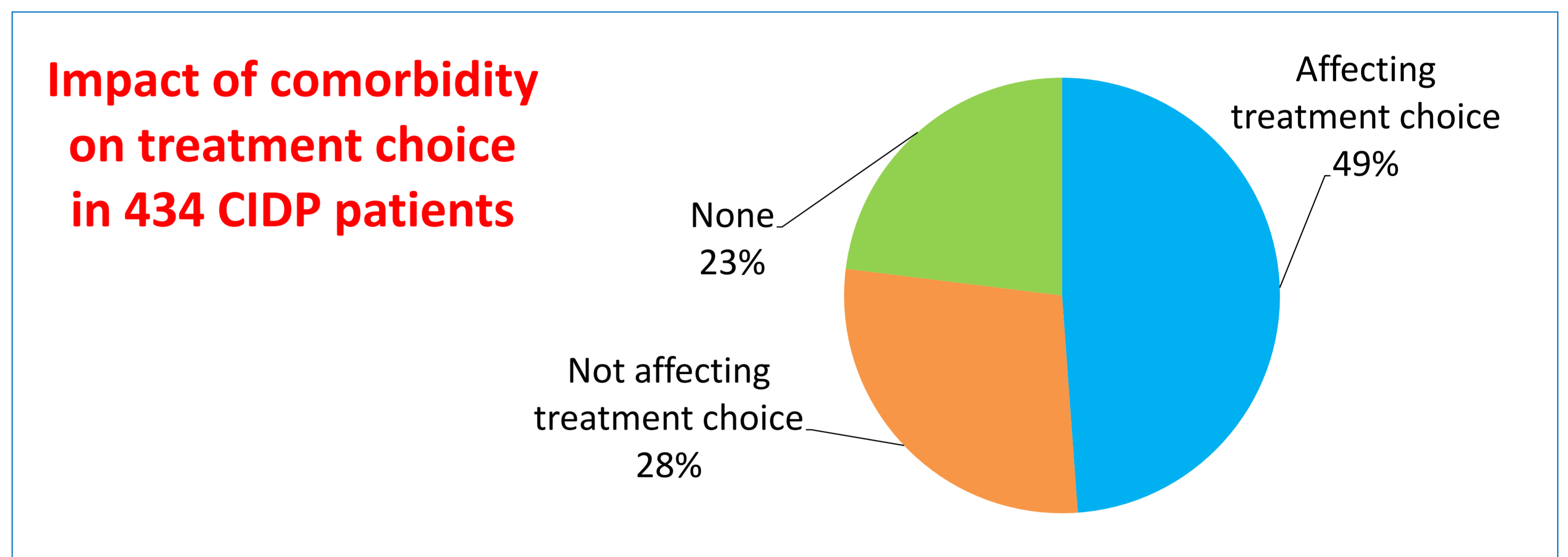
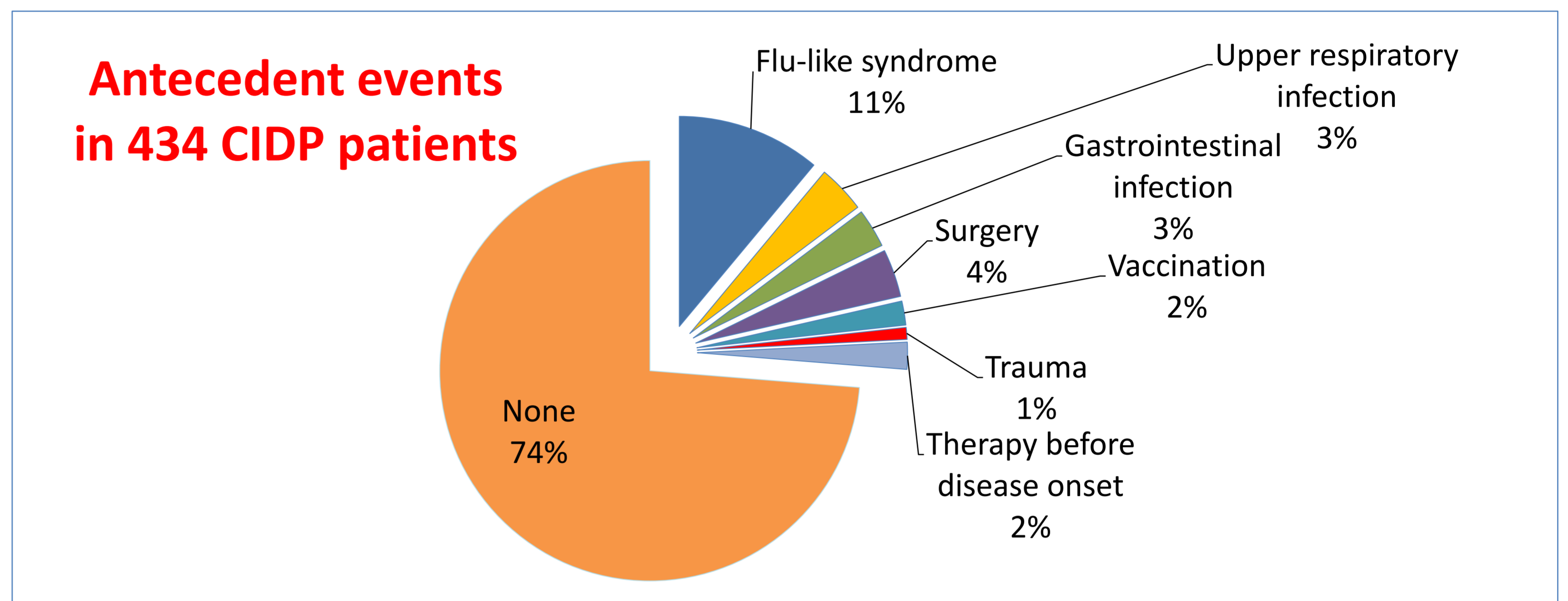
One hundred seven patients (25%) reported an antecedent event, mostly infection or vaccination (20%). One or more comorbidity were present in 77% of the patients including hypertension (36%), thyroid disorders (16%) and diabetes (12.5%) and in 49% influenced the choice of initial therapy.

Risk factors for CIDP onset

Exposure to toxic environmental agents (odds ratio [OR] = 2.55; 95% CI, 1.42-4.55), cigarette smoke (OR = 2.02; 95% CI, 1.4-2.93), and dietary supplements (OR = 1.97; 95% CI, 1.08-3.58) were associated with a higher risk of CIDP while rice consumption was associated with a reduced risk (OR = 0.47; 95% CI, 0.25-0.87).

Risk factors for CIDP progression

More severely affected patients more frequently consumed raw-meat (OR = 2.19; 95% CI, 1.05-4.58) and white meat (OR = 1.65; 95% CI, 1.03-2.63), while rice (OR = 0.42; 95% CI, 0.20-0.92) and soft drink consumption (OR = 0.57; 95% CI, 0.36-0.93) and physical activity were associated with lower disability (OR = 0.47; 95% CI, 0.29-0.77).



CIDP risk: lifestyle and dietary habits

VARIABLE	CONTROLS	PATIENTS	Adj.OR	95%CI	p-value
Exposure to toxic substances					
- Yes	18 (6.6%)	54 (18.4%)	2.55	1.42-4.55	0.0016
- No	255 (93.4%)	240 (81.6%)	1 (ref.)		
- N/A	0	1			
Smoking					
- Current	40 (14.7%)	80 (27.2%)	2.17	1.38-3.40	0.0007
- No	202 (74%)	155 (52.7%)	1 (ref.)		
- Former	31 (11.3%)	59 (20.1%)	1.84	1.11-3.05	0.0182
- N/A	0	1			
Lifetime smoke exposure					
- Never	202 (74%)	155 (52.7%)	1 (ref.)		
- Ever	71 (26%)	139 (47.3%)	2.02	1.4-2.93	0.0002
- N/A	0	1			
Rice					
- <1time/week	39 (21.8%)	80 (27.4%)	1 (ref.)		
- 1-2 time/w	104 (58.1%)	171 (58.6%)	0.74	0.46-1.20	0.2202
- >2 time/w	36 (20.1%)	41 (14.0%)	0.47	0.25-0.87	0.0159
- N/A	94	3			
Food supplements					
- No	18 (10.1%)	50 (17.1%)	0.47	1.08-3.58	0.0271
- Yes	95	2			
- N/A					

CIDP progression: lifestyle and dietary habits

VARIABLE	0-56	MRC 57-60	OR	0-2	INCAT 3-10	OR	0-35	R-ODS 36-48	OR
Raw meat									
- Yes	60%	48%	1.65 (1.03-2.63)						
- No	40%	6.6%							
Physical activity									
- >1/week				47%	33%	0.55 (0.34-0.9)	31%	49%	0.47 (0.29-0.77)
- <1/week				53%	67%		69%	51%	
Rice									
- >1/week							63%	71%	0.46 (0.27-0.80)
- <1/week							37%	29%	
White meat									
- ≥3/week				34%	63%	2.19 (1.05-4.58)			
- <3/week				66%	37%				
Soft drink									
- Yes				48%	36%	0.57 (0.36-0.93)			
- No				52%	64%				

Conclusions: This study confirms that comorbidities are frequent in patients with CIDP and often influence the choice of initial therapy. In addition preliminary data show that toxic exposure and some lifestyle and dietary habits may influence the onset and progression of CIDP.