## RESULTS OF A RETROSPECTIVE IGIBD STUDY ON ADALIMUMAB USE IN REAL PRACTICE IN ITALY: THE REAL-LIFE CLINICAL EFFECTIVENESS OF ADALIMUMAB IN ULCERATIVE COLITIS (REALADA-UC) STUDY

A Vitello<sup>1</sup>, M Mendolaro<sup>2</sup>, M Daperno<sup>1</sup>, A Orlando<sup>3</sup>, D Pugliese<sup>4</sup>, C Ricci<sup>5</sup>, R D'Incà<sup>6</sup>, M Cappello<sup>7</sup>, DG Ribaldone<sup>8</sup>, W Fries<sup>9</sup>, A Viola<sup>9</sup>, M Principi<sup>10</sup>, E Stasi<sup>11</sup>, A Soriano<sup>12</sup>, M Maida<sup>13</sup>, ML Scribano<sup>14</sup>, G Bodini<sup>15</sup>, S Simone<sup>16</sup>, F Mocciaro<sup>17</sup>, D Simondi<sup>18</sup>, AC Privitera<sup>19</sup>, A Armuzzi<sup>4</sup>.

1 Mauriziano Hospital, Torino; 2 S. Luigi Gonzaga – Orbassano; 3 Villa Sofia-Cervello Hospital, Palermo; 4 Policlinico Gemelli Foundation IRCCS, Roma; 5 Spedali Civili, Brescia; 6 University Hospital, Padova; 7 Gastroenterology and Hepatology Section, University of Palermo; 8 University Hospital Città della Scienza e della Salute, Torino; 9 Clinical Unit for Chronic Bowel Disorders, University of Messina; 10 University Hospital, Bari; 11 IRCCS De Bellis, Castellana Grotte; 12 Arcispedale S. Maria Nuova, Reggio Emilia, 13 Gastroenterology and Endoscopy Unit, S. Elia - M. Raimondi Hospital, Caltanissetta; 14 S. Camillo-Forlanini Hospital, Roma; 15 University Hospital, Genova; 16 Rho Hospital, Rho; 17
Gastroenterology and Endoscopy Unit, ARNAS Civico - Di Cristina - Benfratelli Hospital, Palermo; 18 S. Croce-Carle Hospital, Cuneo; 19 Cannizzaro Hospital, Catania; on behalf of IG-IBD (Italian Group for Inflammatory Bowel Disease)

mdaperno@gmail.com



Dott. Alessandro VITELLO

- Adalimumab (ADA) has been approved for the treatment of 14 immune-mediated diseases (5 pediatric).
- In Italy since 2014 UC label for adalimumab required **strict observation** of common treatment pathway.
- Real-life studies result usually hampered by heterogeneous clinical management.



## Aim of the study

To explore clinical effectiveness of Adalimumab in real-world Italian patients





## Patients and Methods

#### Coordinating Center: Gastroenterologia AO Mauriziano di Torino

Torino (Mauriziano) Caltanissetta (M. Raimondi) Palermo (Villa Sofia-Cervello) Palermo (Policlinico P. Giaccone) Messina (G. Martino) Palermo (Civico) Catania (Cannizzaro) Brescia (Spedali Civili) Reggio Emilia (S. Maria Nuova) Padova (Azienda Ospedaliera) Rho (Ospedale di Rho) Lecce (V. Fazzi) Roma (S. Camillo Forlanini) Bari (A. Moro) Genova (S. Martino) Roma (Policlinico Gemelli) Cuneo (S. Croce e Carle) Torino (S. Giovanni Battista)



#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)
Disease duration, years	
Mean ± SD	9.5 ± 8.7
Smoking, n (%)	
Active	24 (7)
Ex-smoker /never	263 (76)
Disease extension (Montreal), n (%)	
E1	16 (5)
E2	120 (35)
E3	210 (61)
Disease activity	
Full Mayo score, Median (IQR)	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)
Endoscopic Mayo score, Median (IQR)	2 (2-3)
CRP (mg/l)	
Mean ± SD	9.4 ± 14.6
Extra-intestinal manifestations, n (%)	80 (23)
Steroid-dependent disease, n (%)	264 (76)
Previous anti-TNFα treatment, n (%)	160 (46)
Previous anti-TNFα discontinuation reason, n (%)	
Primary non-response	16 (10)
Secondary loss of response	74 (46)
Non-infectious adverse event	66 (41)
Infectious adverse event	4 (3)
Combination therapy with IM, n (%)	48 (14)
Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	12.3 ± 1.84
Body weight (kg)	
Mean ± SD	66.3 ± 12.7

#### **Patients Characteristics**

F/M, n (%)

346 171 (49)/175 (51)

Age IBD diagnosis, years, n (%)

# Disease durationMean ± SD9.5 ± 8.7 years

Disease extension (Montreal), n (%)	
E1	16 (5)
E2	120 (35)
E3	210 (61)
Disease activity	
Full Mayo score, Median (IQR)	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)
Endoscopic Mayo score, Median (IQR)	2 (2-3)
CRP (mg/l)	
Mean ± SD	9.4 ± 14.6
Extra-intestinal manifestations, n (%)	80 (23)
Steroid-dependent disease, n (%)	264 (76)
Previous anti-TNFα treatment, n (%)	160 (46)
Previous anti-TNFα discontinuation reason, n (%)	
Primary non-response	16 (10)
Secondary loss of response	74 (46)
Non-infectious adverse event	66 (41)
Infectious adverse event	4 (3)
Combination therapy with IM, n (%)	48 (14)
Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	12.3 ± 1.84
Body weight (kg)	
Mean ± SD	66.3 ± 12.7

#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)

Disease duration years

# **Disease extension - Montreal** E3 (61%), E2 (35%), E1 (5%)

Disease activity	
Full Mayo score, Median (IQR)	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)
Endoscopic Mayo score, Median (IQR)	2 (2-3)
CRP (mg/l)	
Mean ± SD	9.4 ± 14.6
Extra-intestinal manifestations, n (%)	80 (23)
Steroid-dependent disease, n (%)	264 (76)
Previous anti-TNFα treatment, n (%)	160 (46)
Previous anti-TNFα discontinuation reason, n (%)	
Primary non-response	16 (10)
Secondary loss of response	74 (46)
Non-infectious adverse event	66 (41)
Infectious adverse event	4 (3)
Combination therapy with IM, n (%)	48 (14)
Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	12.3 ± 1.84
Body weight (kg)	
Mean ± SD	66.3 ± 12.7

#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)
Disease duration, years	
Mean ± SD	9.5 ± 8.7
Smoking, n (%)	
Active	24 (7)
Ex-smoker /never	263 (76)

Ninene entered (##entered) - n /0/)

# **Disease activity** Median FMS 8 (IQR 6-9) Endoscopic MS 2 (IQR 2-3)

Previous anti-TNFα treatment, n (%)	160 (46)
Previous anti-TNF $\alpha$ discontinuation reason, n (%)	
Primary non-response	16 (10)
Secondary loss of response	74 (46)
Non-infectious adverse event	66 (41)
Infectious adverse event	4 (3)
Combination therapy with IM, n (%)	48 (14)
Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	$12.3 \pm 1.84$
Body weight (kg)	
Mean + SD	66.3 + 12.7

#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)
Disease duration, years	
Mean ± SD	9.5 ± 8.7
Smoking, n (%)	
Active	24 (7)
Ex-smoker /never	263 (76)
Disease extension (Montreal), n (%)	
E1	16 (5)
E2	120 (35)
E3	210 (61)
Disease activity	
Full Mayo score, Median (IQR)	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)

## Previous anti-TNFα 46%

Secondary loss of response	74 (46)
Non-infectious adverse event	66 (41)
Infectious adverse event	4 (3)
Combination therapy with IM, n (%)	48 (14)
Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	12.3 ± 1.84
Body weight (kg)	
Mean ± SD	66.3 ± 12.7



#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)
Disease duration, years	
Mean ± SD	9.5 ± 8.7
Smoking, n (%)	
Active	24 (7)
Ex-smoker /never	263 (76)
Disease extension (Montreal), n (%)	
E1	16 (5)
E2	120 (35)
E3	210 (61)
Disease activity	
Full Mayo score, Median (IQR)	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)
Endoscopic Mayo score, Median (IQR)	2 (2-3)
CRP (mg/l)	
Mean ± SD	9.4 ± 14.6
Extra-intestinal manifestations, n (%)	80 (23)

**EIMs** 23%

Combination therapy with corticosteroids, n (%)	138 (40)
Dose of corticosteroids (mg)	
Mean ± SD	25 ± 15
Hemoglobin (g/dl)	
Mean ± SD	12.3 ± 1.84
Body weight (kg)	
Mean ± SD	66.3 ± 12.7

K-BD

#### **Patients Characteristics**

	346
F/M, n (%)	171 (49)/175 (51)
Age IBD diagnosis, years, n (%)	
< 20	59 (17)
20-45	209 (60)
> 45	78 (23)
Disease duration, years	
Mean ± SD	9.5 ± 8.7
Smoking, n (%)	
Active	24 (7)
Ex-smoker /never	263 (76)
Disease extension (Montreal), n (%)	
E1	16 (5)
E2	120 (35)
E3	210 (61)
Disease activity	
Full Mayo score, <i>Median (IQR)</i>	8 (6-9)
Partial Mayo score, Median (IQR)	5 (4-7)
Endoscopic Mayo score, Median (IQR)	2 (2-3)
CRP (mg/l)	
Mean ± SD	9.4 ± 14.6
Extra-intestinal manifestations, n (%)	80 (23)
Steroid-dependent disease, n (%)	264 (76)
Previous anti-TNFα treatment, n (%)	160 (46)
Previous anti-TNFα discontinuation reason, n (%)	
Primary non-response	16 (10)
Secondary loss of response	74 (46)

# **Combination therapy** IM (14%), Corticosteroids (40%)

Body weight (kg) Mean ± SD

66.3 ± 12.7

#### **Persistence (cumulative probability)**



The cumulative probability of continuing ADA therapy over one year was 64%

#### **Reasons for ADA discontinuation**



#### **Clinical response and remission**

	CLINICAL EFFECTIVENESS (Investigator's opinion)	CLINICAL RESPONSE (Delta PMS ≥2)	CLINICAL REMISSION (PMS ≤2)
Week 8	283/346 ( <b>82%</b> )	243/346 ( <b>70%</b> )	176/346 ( <b>51%</b> )
Week 24	206/346 ( <b>60%</b> )	191/346 ( <b>55%</b> )	173/346 ( <b>50%</b> )
Week 52	154/346 ( <b>45%</b> )	144/346 ( <b>42%</b> )	142/346 ( <b>41%</b> )

ITT analisis

- → ADA optimization (EW): 42%, 6.6 month (IQR 3.2-14.2). 45% of patients with ADA optimization avoid withdrawal, NNH 5.4 (95% CI 3.5-12.7)
- ➔ Endoscopic evaluation only in 70/346 patients (20%), 17.7 months (IQR 10.8-27.3) with Mucosal healing (Endoscopic Mayo Score 0-1) achieved in 34/70 (48.5%) of cases





Cumulative colectomy-free survival was 92%, 85%, and 80% at 12, 24, and 36 months, respectively

#### **Adverse events**

ADVERSE EVENTS	TOTAL TIME to AE (months)		
	68/346 (19.7%)	11 (IQR 5-20)	
Allergic reactions	n= 4	1 (IQR 0.3-5)	
Infections	n= 8	5 (IQR 3-11)	
Skin disorders	n= 7	8 (IQR 4-20)	
Rheumatological disorders	n= 7	5 (IQR 1-15)	
Malignancy	n= 2	21 (IQR 3-40)	



#### **Predictors (Cox regression)**

	Time to Adalimumab stop			Time to Colectomy		
	Univariate P	Multivariate P	HR	Univariate P	Multivariate P	HR
Male gender	.181			.113		
Age ≥ 60, naïve	.994					
Age at diagnosis ≥ 40 y				<.001	.003	3.26
Disease duration > 5 y	.004	<.001	0.64	.658		
Current smoker	.579			.761		
Extensive colitis (E3)	.403			.037	.041	2.28
Severe activity at baseline	.001	.018	1.59	<.001	.001	2.45
CRP > 10 mg/L	.228			.468		
EIMs	.020	NS		.281		
Steroid-dependent disease	.582			.786		
Concomitant thiopurines	.066	NS		.644		
Corticosteroids at baseline	.087	NS		.092	NS	
ADA optimization	.040	NS		.394		
Previous Anti-TNFα	.744			.543		
W8 clinical effectiveness	<.001	<.001	0.27	<.001	.002	0.32
W8 variation in PMS	.023	NS		.849		
Anemia (Hb < 12 g/dl)	.425			.216		
Body weight ≥ 80 kg	.423			.624		

Predictors (Cox regression)						
	Time to Adalimumab stop			Time to Colectomy		
	Univariate P	Multivariate P	HR	Univariate P	Multivariate P	HR
Male Age ≥ Age at dia Disease d Curren Extensive	Time to sease d re activ	Adali uratio ity at	mui n >5 hase	mab st 5 y, HR oline	top 0.64 HR 1 <sup>-</sup>	5 5 3
Severe activ CRP > E	N8 effe	ectiver	ness	, <b>HR</b> 0	.27	5
Steroid-dependent disease	.582			.786		
Concomitant thiopurines	.066	NS		.644		
Corticosteroids at baseline	.087	NS		.092	NS	
ADA optimization	.040	NS		.394		
Previous Anti-TNFα	.744			.543		
W8 clinical effectiveness	<.001	<.001	0.27	<.001	.002	0.32
W8 variation in PMS	.023	NS		.849		
Anemia (Hb < 12 g/dl)	.425			.216		
Body weight > 80 kg	423			624		

#### **Predictors (Cox regression)**

	Time to Adalimumab stop			Time to Colectomy			
	Univariate P	Multivariate P	HR	Univariate P	Multivariate P	HR	
Male gender	.181			.113			
Age ≥ 60, naïve	.994						
Age at diagnosis ≥ 40 y				<.001	.003	3.26	
Disease duration > 5 y	.004	<.001	0.64	.658			
Current smoker	.579			.761			

Extensive Severe activ CRP > E

Steroid-dep Concomita Corticostero ADA op Previous

W8 clinical

W8 varia

Anemia (Hp < ⊥∠ g/ q) Body weight ≥ 80 kg

.423

Time to Colectomy Age at diagnosis  $\geq$  40 y, HR 3.26 Extensive colitis (E3), HR 2.28 Severe activity at baseline, HR 2.45 W8 effectiveness, HR 0.32

.624

- Large (346 patients) retrospective study with homogeneous data capturing
- Persistence was satisfactory: 64% in 1 year (8% intentionally stopping in well being)
- Short-term effectiveness very high (82%), majorly impacting on long-term persistence in treatment
- No safety signal emerged
- Colectomy in 35/346 cases (10%): significant protective effect of ADA on the short-medium term risk of colectomy.



## Thank you for your attention

