PREVALENCE OF ANAEMIA IN INFLAMMATORY BOWEL DISEASE: PRELIMINARY RESULTS OF THE OBSERVATIONAL ITALIAN MULTICENTRE IG-IBD STUDY RIDART 1

Bergamaschi G, Lenti MV, Giuffrida P, D'Incà R, Astegiano M, Aronico N, Fries W, Rizzello F, Cococcia S, Ciacci C, Bossa F, Orlando A, Ghigliazza G, Castiglione F, Pellegrini L, Testa A, Milla M, Nardelli S, Principi MB, Scribano ML, Ricci C, Mazzucco D, Riegler G, Bassotti G, Buda A, Neri M, Bodini G, Monica F, Manca A, Villa E, Masotti M, Comberlato M, Saibeni S, Bezzio C, Sidoli L, Cannatelli R, Neve V, Vernia P, Pieraccini A, Testa A, Mengoli C, Rizzuto G, Fontana R, Iovino P, Valerii C, Pinto Vraca T, Ponzo E, Caccaro R, Corazza GR, Di Sabatino A

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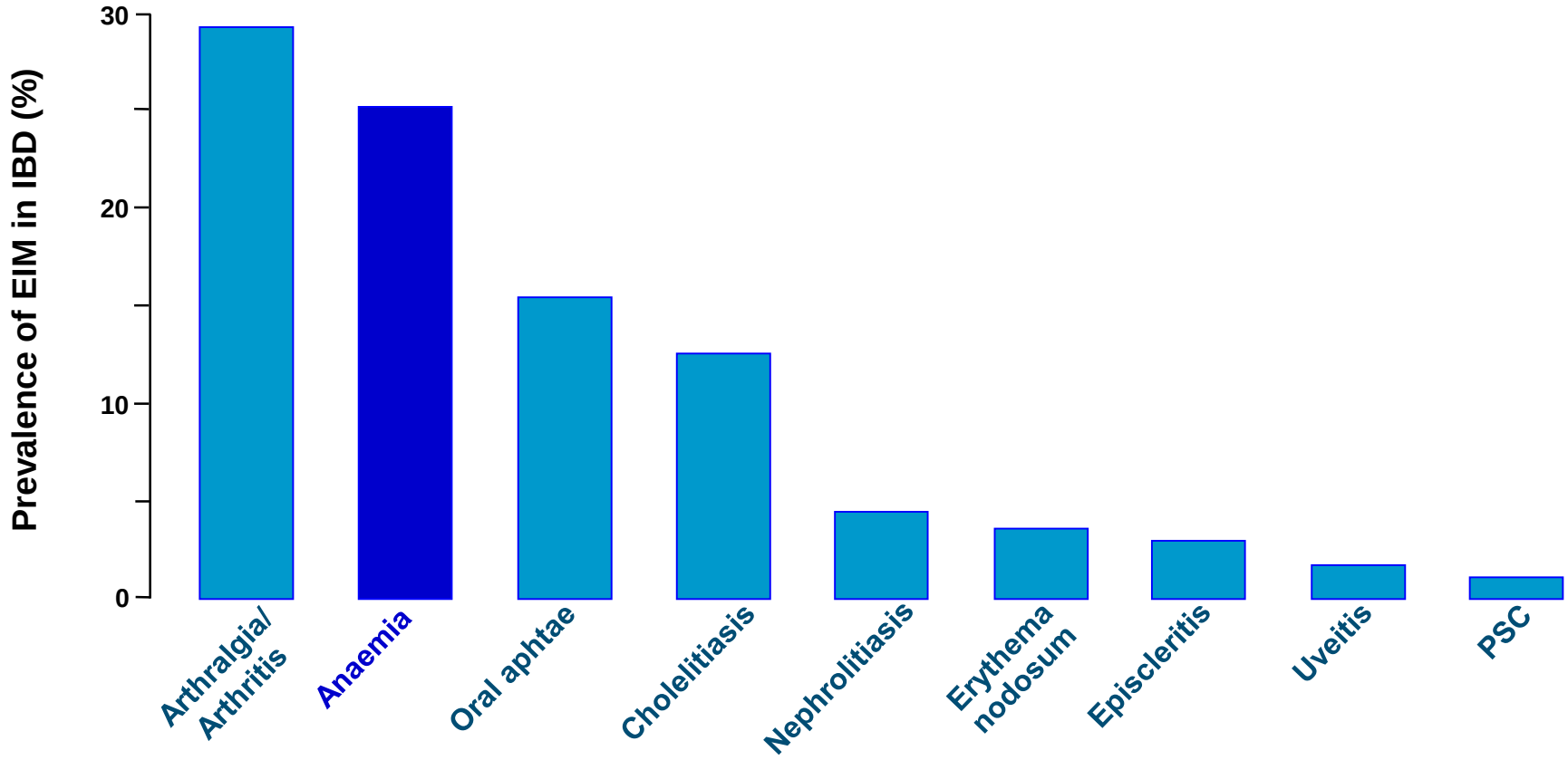
Conflict of interests: none to disclose

ANAEMIA IS THE SECOND MOST COMMON EXTRAINTESTINAL MANIFESTATION OF INFLAMMATORY BOWEL DISEASE (IBD)



Ott C & Scholmerich J. *Nat Rev Gastroenterol Hepatol 2013*

ANAEMIA IS A RELEVANT CAUSE OF REDUCED QUALITY OF LIFE AND HIGH MORTALITY IN IBD PATIENTS

PREDICTORS OF QUALITY OF LIFE IN 615 PTS

(*Regression Analysis*)

VARIABLES	*F* VALUE	*P* VALUE
IBD severity score	113.10	<0.0001
Arthritis	54.53	<0.0001
Hearth disease	12.77	0.0004
Age	8.46	0.0039
Anemia	6.93	0.0089
Back/shoulder pain	6.00	0.0149
Hypertension	4.41	0.0367

Pizzi LT et al. *Inflamm Bowel Dis* 2006

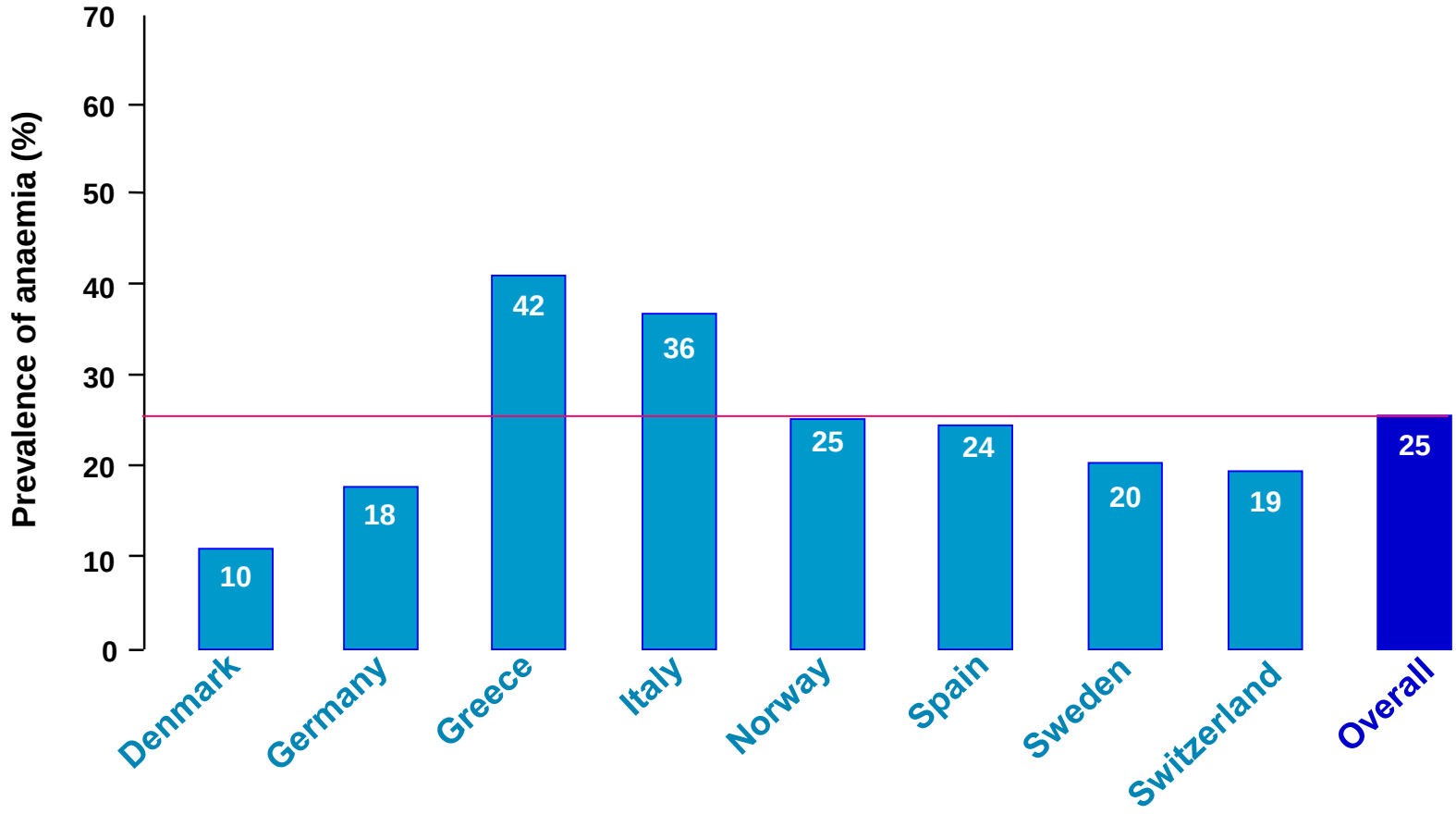
CAUSES OF DEATH IN IBD

(*Proportional Mortality Rate, PMR*)

COMORBIDITIES	*PMR*	*95% CI*
Suppurative peritonitis	20.6	15.4-25.8
Malnutrition	19.9	13.5-26.3
Surgical complications	17.9	9.5-25.0
Hypoalbuminemia	9.3	3.5-15.1
Anemia	6.9	2.4-11.4
Sepsis	6.9	4.7-9.1
Shock	2.9	2.4-3.3

Cucino C & Sonnenberg A. *Inflamm Bowel Dis* 2001

PREVALENCE OF IBD-ASSOCIATED ANAEMIA IN 8 EUROPEAN COUNTRIES: A SYSTEMATIC REVIEW AND INDIVIDUAL PATIENTS' DATA META-ANALYSIS



Filmann N et al. Inflamm Bowel Dis 2014

DESIGN AND AIMS OF THE STUDY

- ✓ **Observational multicentre study**
- ✓ **All patients with IBD are asked to participate: follow-up at 4, 12 and 24 weeks**
- ✓ **Medical history, IBD history, blood tests (iron status, folic acid, vitamin B12, creatinine, inflammatory markers, albumin)**
- ✓ **Expected recruitment → approximately 2000 anaemic patients out of 5000-8000 IBD patients**

PRIMARY AIM:

<u>To define the prevalence of anaemia</u> in an unselected population of patients with IBD

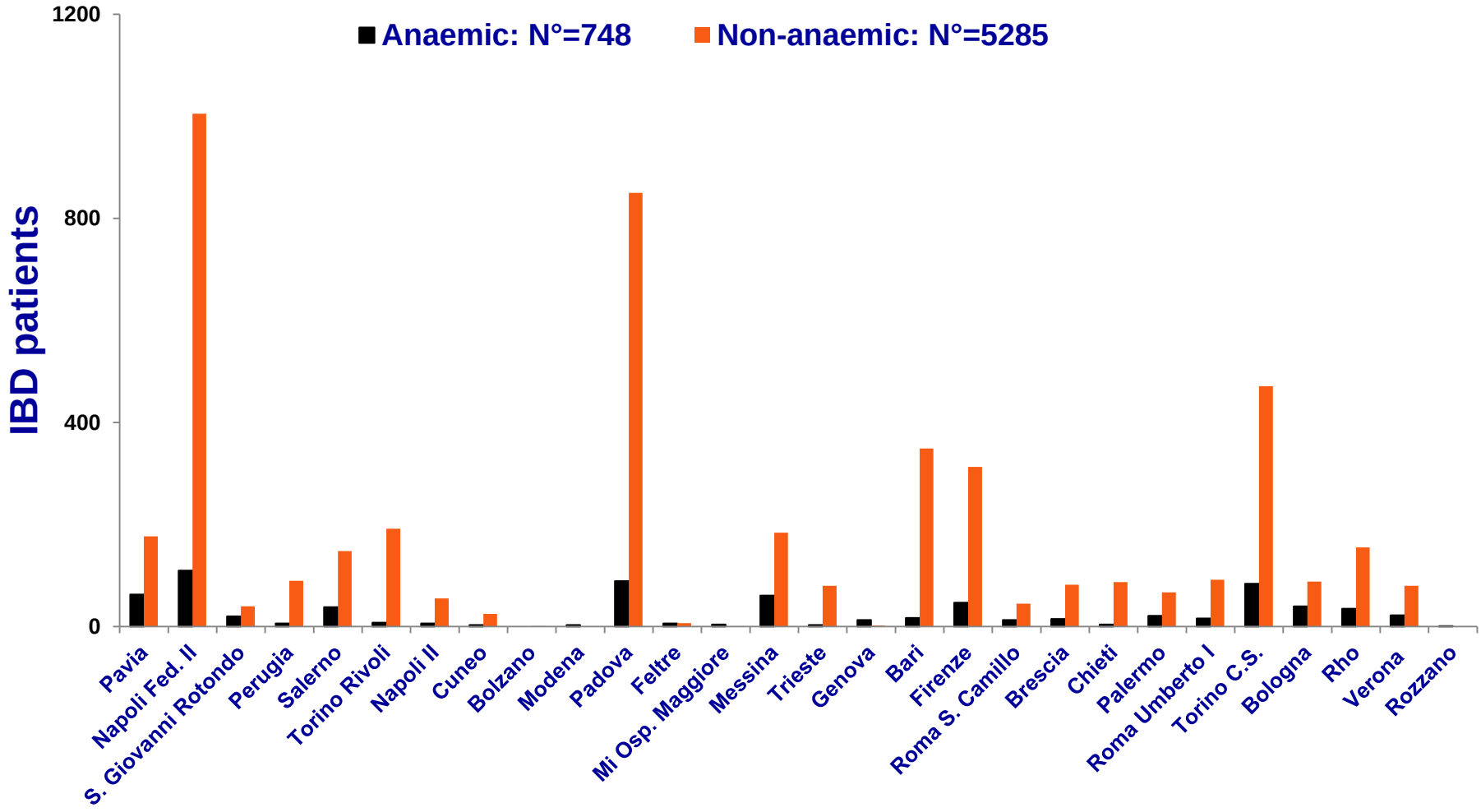
SECONDARY AIM:

<u>Pathogenesis of anaemia</u> (as influenced by disease activity, extension, behaviour and treatment)

CLINICAL BURDEN OF ANAEMIA IN INFLAMMATORY BOWEL DISEASE: ROLE OF IRON DEFICIENCY AND IRON REPLACEMENT THERAPY, OBSERVATIONAL STUDY (RIDART) 1

IG-IBD the Italian Group for the study of Inflammatory Bowel Disease

Recruiting sites: 28; registered patients: 5433



CRUDE PREVALENCE OF ANAEMIA

Prevalence of anaemia	13.7%
Screened pts/Centre (range)	1-1115
Pts with anemia (range)	0-110
Anaemic Females/non-anaemic Females	394 (52.7%)/2013 (38.1%) p<0.0001

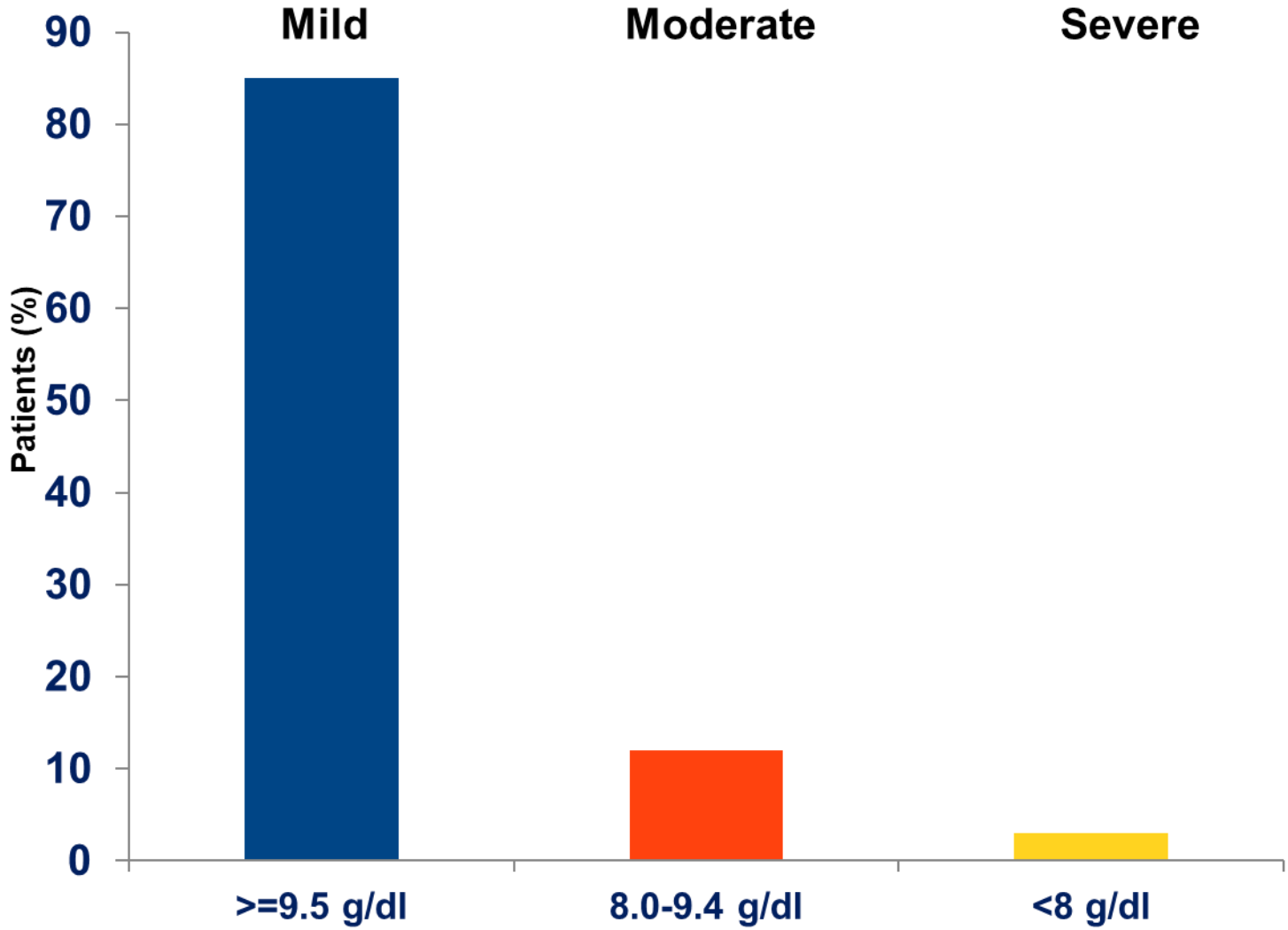
Centre	Anemic patients (N)	Registered patients (N)	Prevalence (%)
1	64	240	27
2	38	186	19
3	8	200	**4**
4	110	1115	10
5	89	939	9
6	61	245	25
7	17	366	5
8	47	360	13
9	16	108	15
10	884	555	15
11	40	128	**31**
12	35	190	18
13	22	102	22

AGE, GENDER & DISEASE DURATION

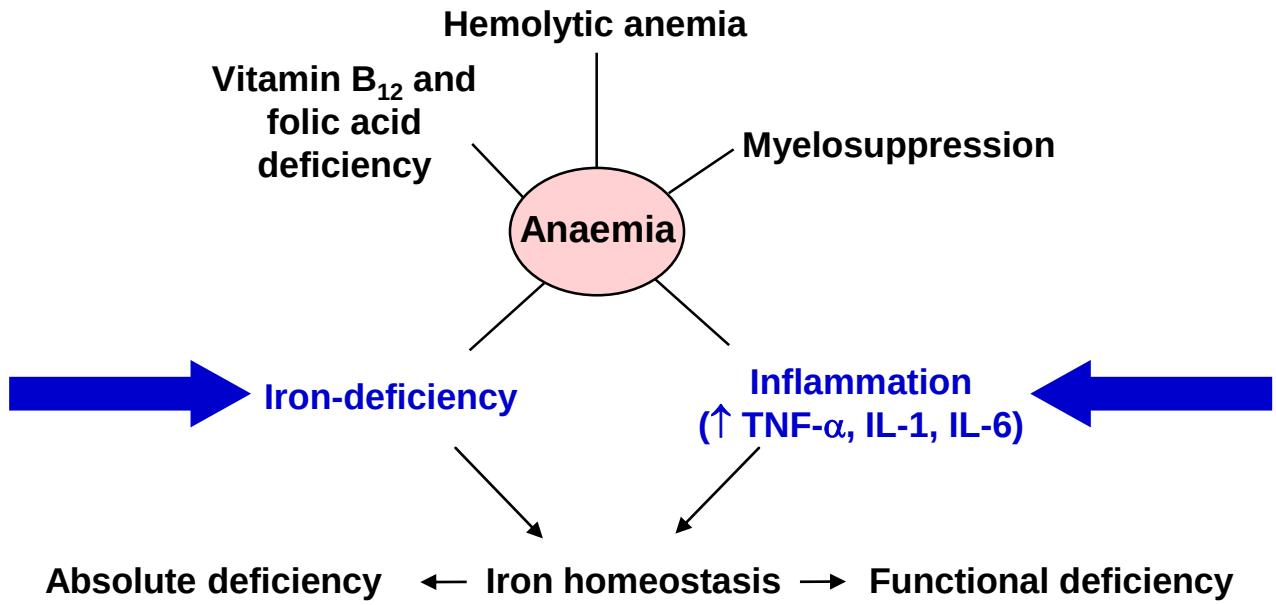
VARIABLES	ANAEMIC GROUP	NON- ANAEMIC GROUP	P-VALUE
Age (years)			
Mean, range	46.2, 18-87	46.3, 18-92	NS
Gender			
Male (n, %)	298 (47.4)	2391 (56.9)	<0.0002
Female (n, %)	331 (52.6)	1811 (43.1)	
Duration of IBD (years)			
Median, range	11.9, 0-50	12.1, 0-67	NS

NS, not significant.

PREVALENCE OF DIFFERENT DEGREES OF ANAEMIA

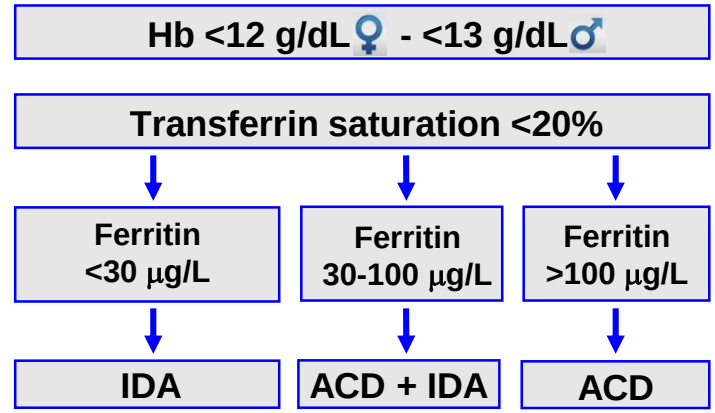


AETIOPATHOGENESIS OF ANAEMIA IN PATIENTS SUFFERING FROM IBD



FREQUENTLY	OCCASIONALLY	RARELY
- Iron-deficiency (IDA) - Anaemia of chronic disease (ACD)	- Vitamin B_{12} / folic acid deficiency (drug-induced → sulfasalazine, thiopurines)	- Hemolysis - Myelodysplastic syndrome - Chronic renal insufficiency - Aplasia (mainly drug-induced) - Congenital hemoglobinopathy or erythropoiesis disorders

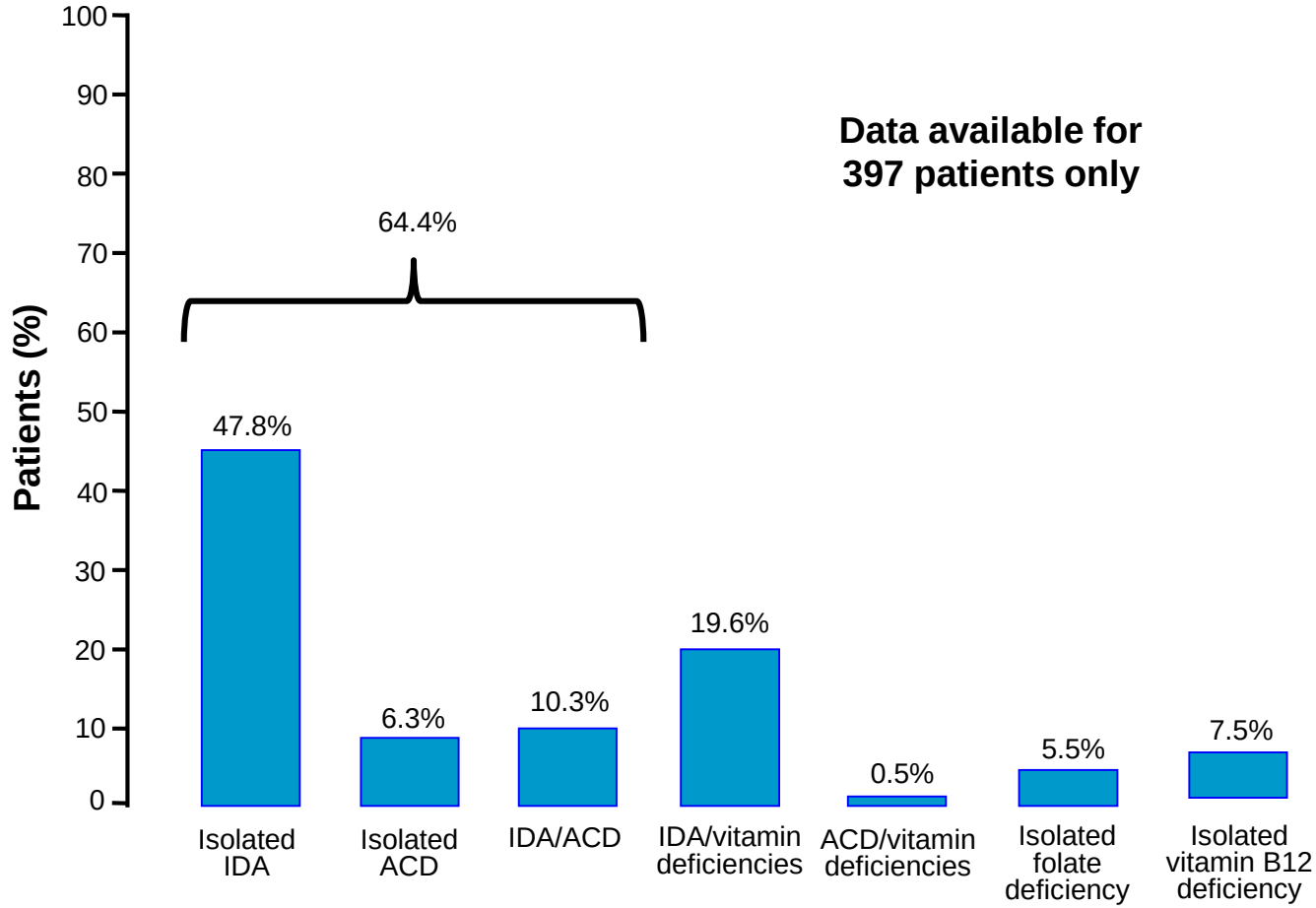
DEFINITION OF IRON-DEFICIENCY ANAEMIA (IDA) VS ANAEMIA OF CHRONIC DISEASE (ACD)



LABORATORY DATA	IDA	ACD	IDA & ACD
Ferritin	Low	High	High or Normal
Transferritin Saturation (TfSat)	Low	Low or Normal	Low
Mean Corpuscolar Volume (MCV)	Low	Normal or Low	Low or Normal
Soluble Transferrin Receptor (sTfR)	High	Low or Normal	High or Normal
sTfR-Ferritin Index (sTfR/log ferritin)	High (>2)	Low	High (>2)

Gasche C et al. Inflamm Bowel Dis 2007

PATHOGENESIS OF ANAEMIA



LAB TESTS IN ANAEMIC PATIENTS ACCORDING TO DISEASE ACTIVITY

VARIABLE	ACTIVE DISEASE	INACTIVE DISEASE	P-VALUE
Hb (g/dl)			
Median, IQR	10.8, 9.6-11.6	11.3, 10.6-11.8	<0.0001
CRP (mg/dl)			
Median, IQR	1.5, 0.59-4.96	0.7, 0.21-3.0	<0.0001
Ferritin (ng/ml)			
Median, IQR	15, 7-46	12, 7-36	NS
Transferrin saturation (%)			
Median, IQR	7, 5-10	9, 5-16	NS
Total protein (g/dl)			
Median, IQR	6.9, 6.1-7.5	7.1, 6.7-7.6	NS
Albumin (g/dl)			
Median, IQR	3.5, 3.1-3.9	3.9, 3.4-4.3	0.0306

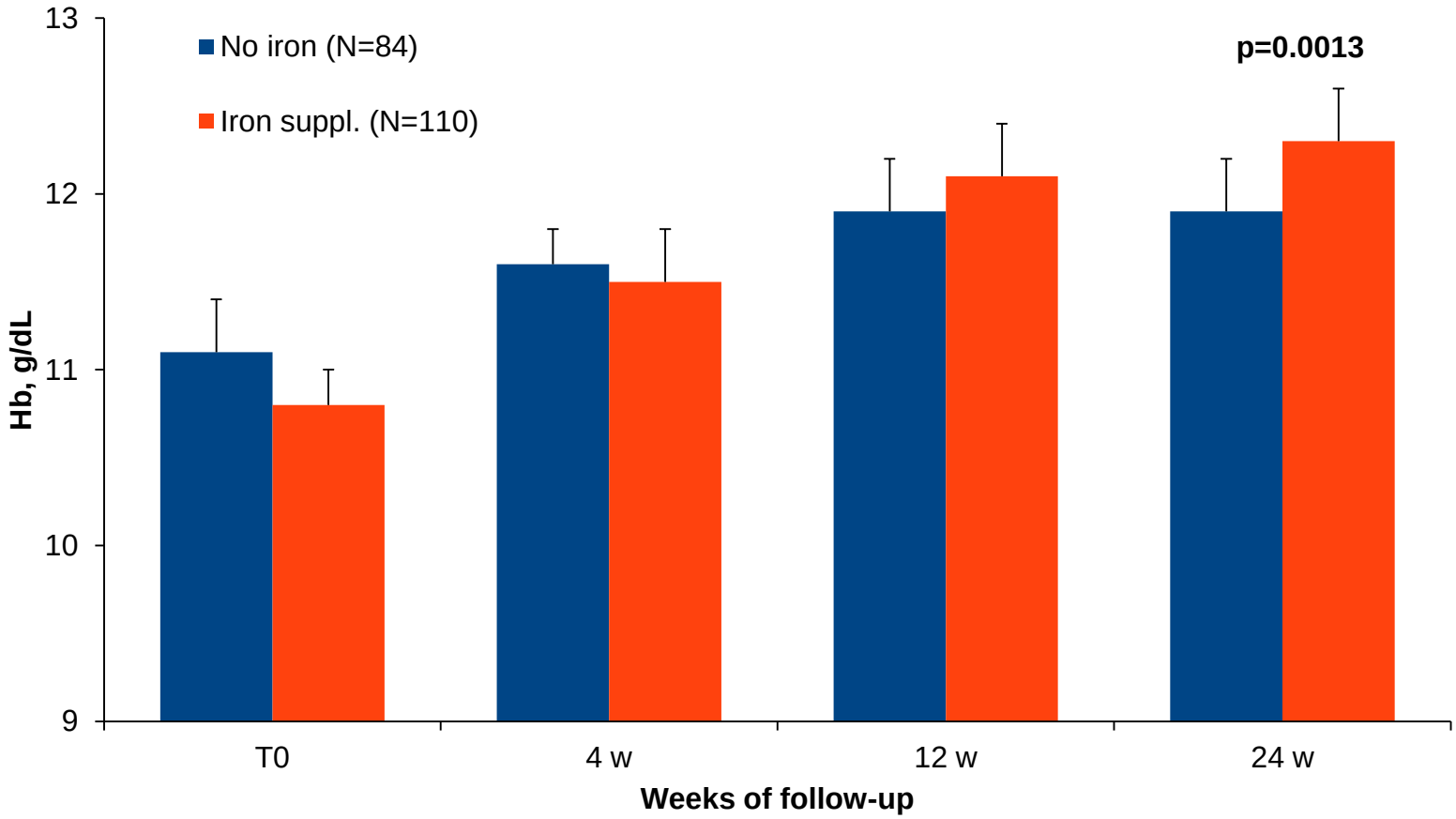
CRP, C reactive protein; IQR, interquartile range.

CORRELATIONS BETWEEN LAB TESTS & DISEASE ACTIVITY INDEXES AND AMONGST LAB TESTS IN ANAEMIC PTS

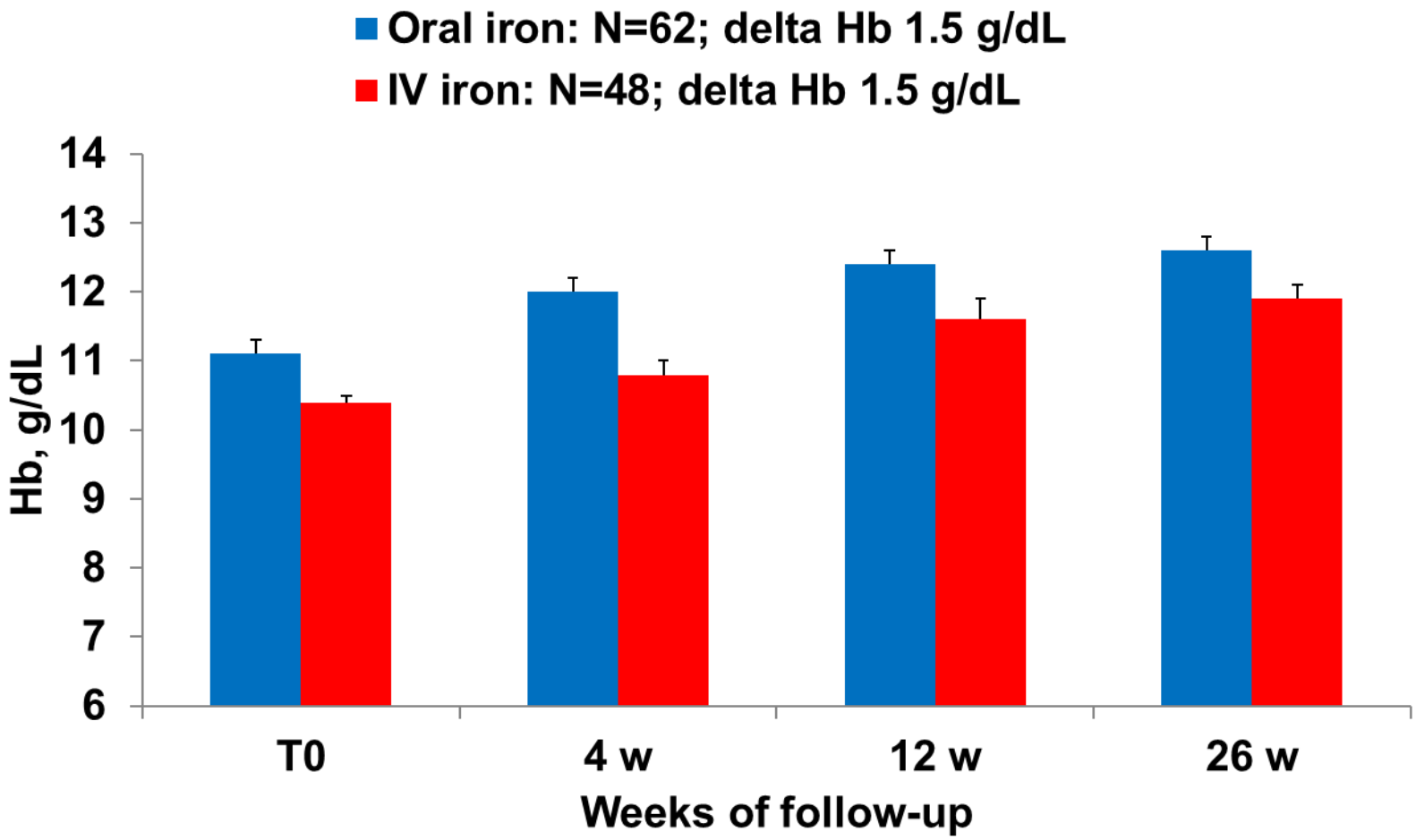
PARAMETERS	CASES (n)	CORRELATION COEFFICIENT r	P-VALUE
Hb – CDAI	211	-0.302	<0.0001
Hb – CAI	138	-0.190	0.0256
Hb – PLT	246	-0.296	<0.0001
Hb – albumin	116	0.236	0.0107
Hb – asthenia	387	-0.238	<0.0001
Hb – IBDQ	398	0.163	0.0008

CAI, clinical activity index; CDAI, Crohn's disease activity index.

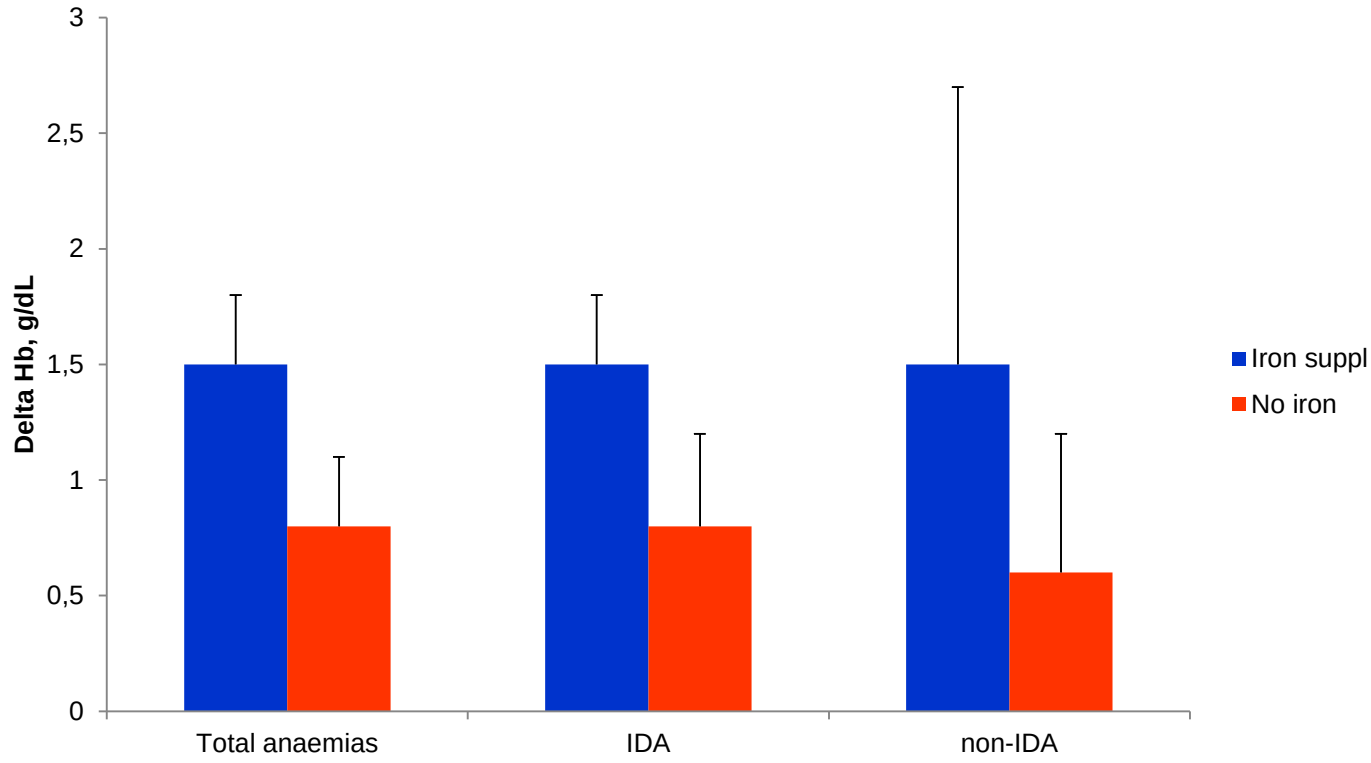
HAEMOGLOBIN VARIATIONS DURING FOLLOW-UP



EFFECTIVENESS OF ORAL VS INTRAVENOUS IRON SUPPLEMENTATION



COMPARISON OF IRON SUPPLEMENTATION VS NO SUPPLEMENTATION IN DIFFERENT TYPES OF ANAEMIA



	Iron (N)	No iron (N)	p
Total anaemias	129	106	0.0013
IDA	111	71	0.0137
Other anaemias	18	35	NS

CONCLUSIONS

- We found a lower prevalence of anaemia (13.7%) in comparison to that reported in previous European studies (mean prevalence 25%)
- Iron deficiency anaemia is the most common cause of anaemia in IBD patients, but other causes co-occurring within the same patient should also be considered (i.e.; ACD, vitamin B12/folic acid deficiency)
- Anaemia is generally more severe in patients with active disease and Hb level correlates with disease activity
- Iron treatment (both oral and iv) is effective also for ACD
- Current data should not be overinterpreted since data analysis is still underway

THANKS to IGIBD for supporting the study and to all the investigators