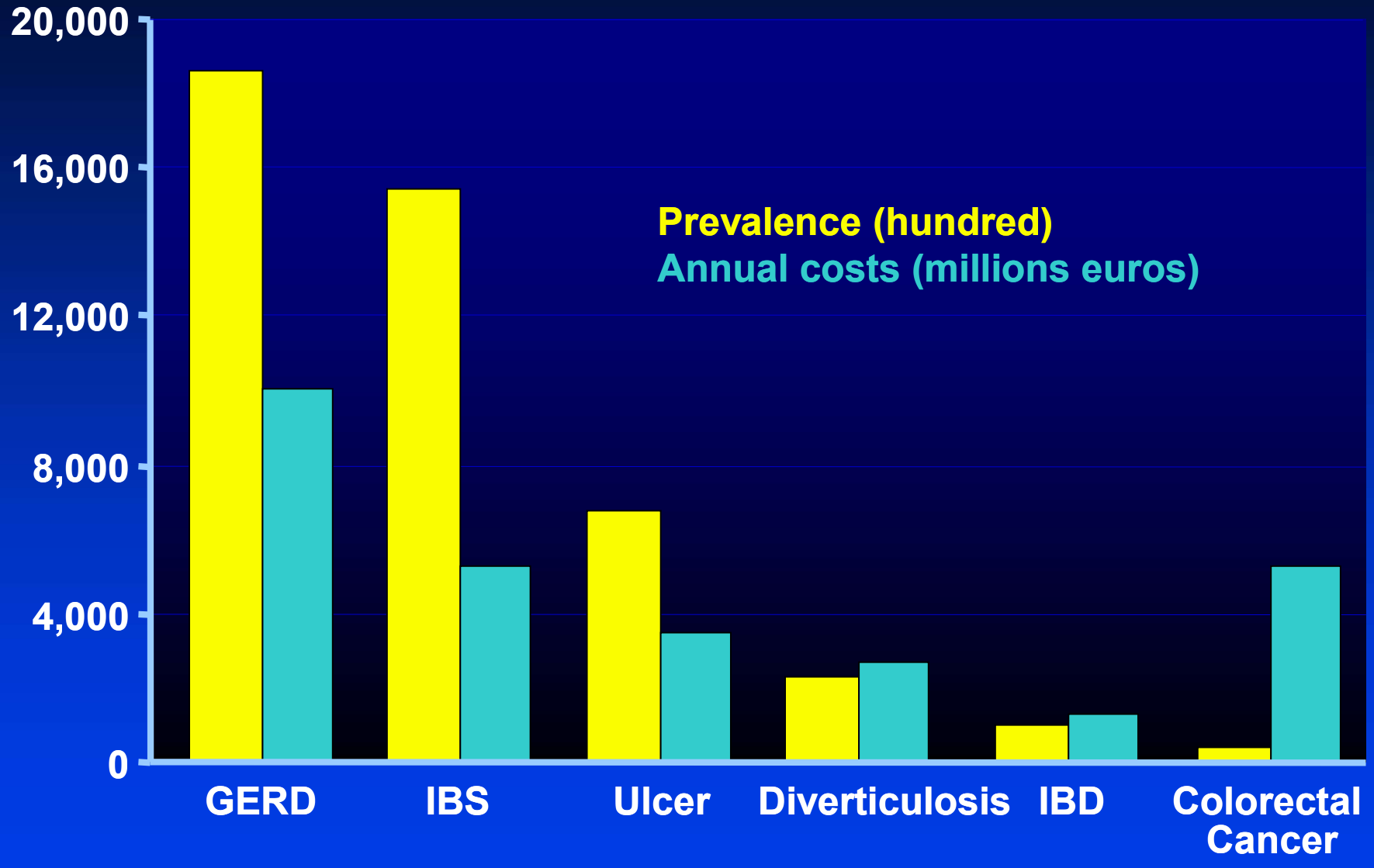
Tests respiratoires
Rôle du ”SIBO” dans le SII

Pr Thierry PICHE
CHU Nice

APSSII

GFNG
Groupe Français
de Neuro-Gastroentérologie

GI diseases (2020)



Usual IBS presentation !

“Your tests and results are normal, get out it’s stress ! ”

Cluster of IBS symptoms
Some ressembling to SIBO

Dyspareunia

Backache

Depression

Pain

Bloating

Diarrhea

Constipation

Headhache

Quality of life

Anxiety

Fatigue

Lethargy

Arthralgia

Urinary symptoms

Thompson WG et al., Gastroenterology 1980

60 yrs of research…

1950 — 1960 — 1970 — 1980 — 1990 — 2000 → 

Motility

Bioelectric markers

Brain-Gut

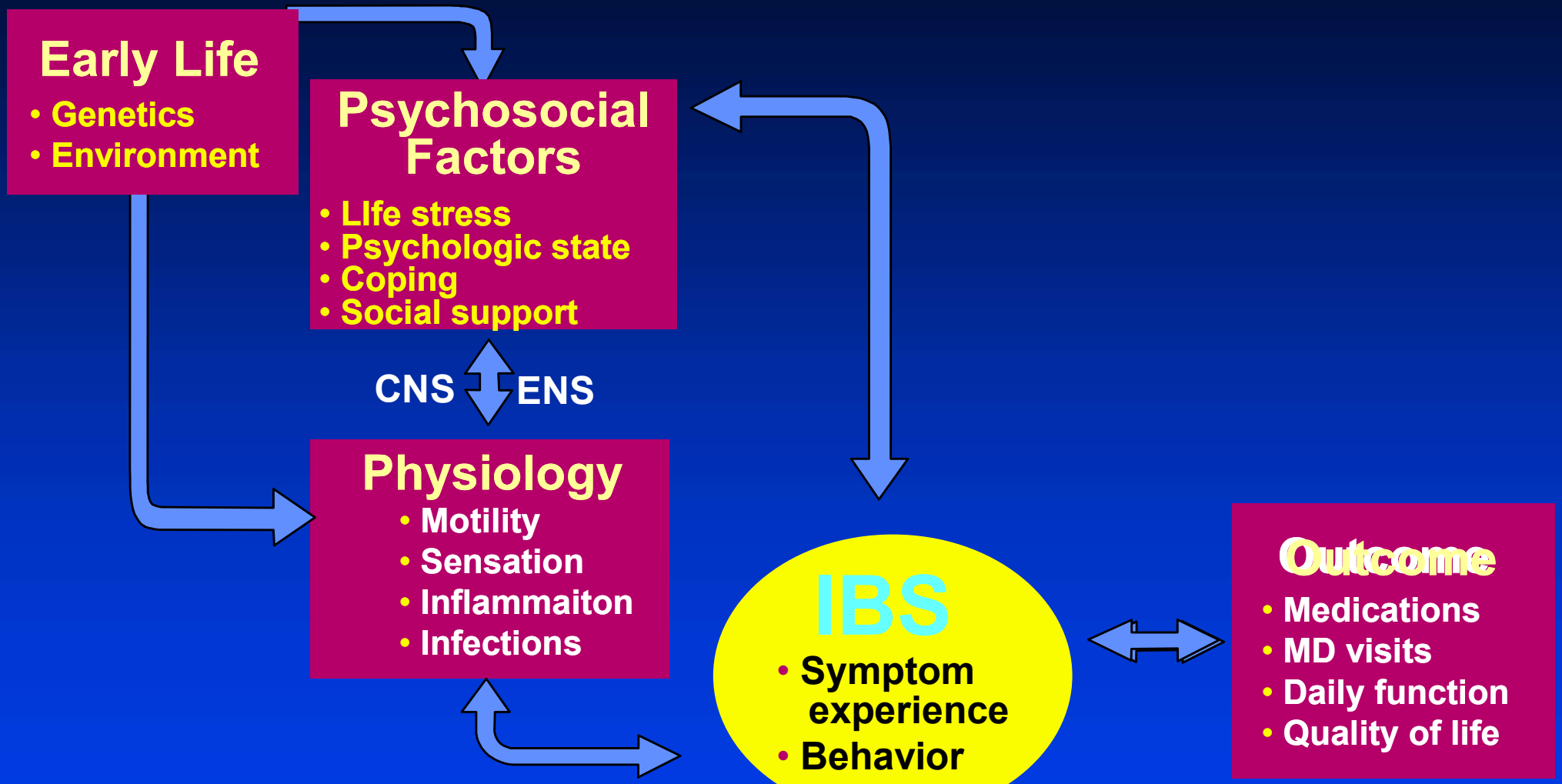
Dysbiosis - SIBO

Leaky gut

Inflammation

Gut hypersensitivity

IBS biopsychosocial model



Drossman D et al, Gut 1999

ACG Clinical Guideline: Management of IBS

Patient presenting with recurrent abdominal pain
And a change in bowel habit for at least 3 months

Take a history and perform a
Clinical examination

Exclude red lag symptoms
Weight loss, fever,
Blood in the stool..

Consider targeted testing
CBC, IgA/TTG, CRP, Vitamin B12, folate,
ferritin, TSH and fecal calprotectin

ROME IV criteria for IBS
Reccurent abdominal pain
Occuring on an average of at least 1 day per week in the previous 3 months,
with at least two of the following:
Related to defecation
Associated with a change in frequency or appearence of stool

Place des tests respiratoires ?

Lacy BE et al., Am J Gastroenterol 2021

IBS - symptomatic-based approach

ACG Clinical Guideline

Diarrhea

Lifestyle
Loperamide
Cholestyramine
Scd intention
Alosetron (Antgonist 5-HT3)
Eluxadoline (mixed opioid)
Rifaximin

Pain / bloating

Lifestyle
Antispasmodics
Probiotics
Low FODMAP
Rifaximin
Scd Intention
Linaclotide
Eluxadoline if IBS C
TCAs if IBS-D
SSRIs if IBS-C
Gut-directed psychoth & CAM

Constipation

Lifestyle
Fibers (solubles)
Psyllium
PEG
Scd Intention
Linaclotide (Agonist GC)
Lubiprostone (Chlorid channels)

Lacy BE et al., Am J Gastroenterol 2021

SIBO-IBS
Prévalence et symptoms

- Etude prospective 2021-2022 CHU NICE
- Prévalence élevée du SIBO au cours du SII *
- Production de gaz corrélée à la sévérité du SII ?

Objectifs:

- Déterminer la prévalence du SIBO au cours du SII
- Rechercher une corrélation entre la production de gaz et la sévérité du SII

** (15 à 80%) Uday C Gut and liver 2017*

Méthodes

- Recrutement prospectif 01 janvier 2021-2022
- **250 patients** atteints d'un SII (critères de ROME IV)

- ***Formulaires d'auto évaluation :***
  - Score de Francis : sévérité du SII
  - Score GIQLI : qualité de vie
  - Score HAD : anxiété et dépression

Méthodes

- **Tests respiratoires au glucose (50g) :**
  - Mesure toutes les 15 minutes des taux d'H2 et CH4 expirés (180 min au total)
  - Test positif si Delta **H2 > 12 ppm avant 90 min** ou Si **CH4 > 10 ppm**
  - Evaluation de l'inconfort et des ballonnements par une EVA (toutes les 15 min)
- Analyse statistique: somme des valeurs d'H2/CH4 mesurées au cours du test

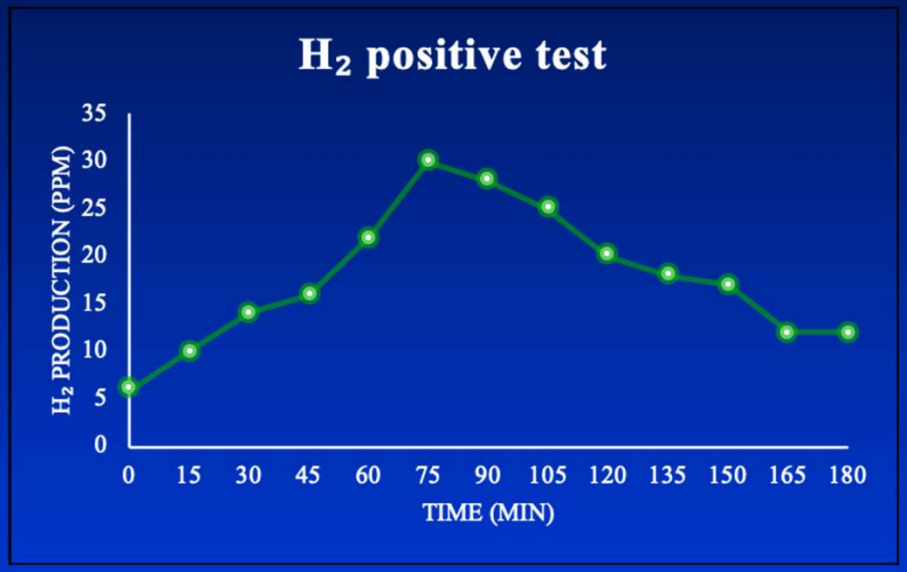
Study population

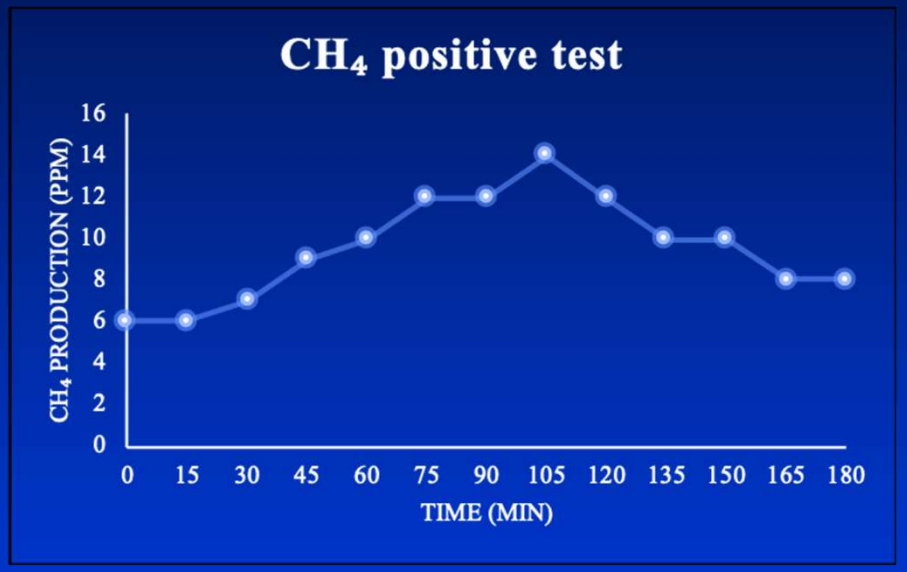
Parameters	Values
Age (min-max)	49,8 (16-85)
Gender	
Male	56 (22.67%)
Female	191 (77.33%)
IBS	
Constipation	82 (33.19%)
Diarrhea	100 (40,49%)
Alternating	65 (26.32%)
Duration of disease in years	9.1 [0.5-56]
Francis score	268 [25-496]
GIQLI score	77.15 [25-133]
HAD scale	
Depression	8.05 [0-20]
Anxiety	10.01 [0-21]

Cinical Findings according to IBS subtypes

Clinical scores	IBS C	IBS D	IBS A	P value
Francis score (median)	240 [25-490]	295 [60-420]	230 [55-470]	0.782
GIQLI score (median)	81 [44-112]	73 [25-113]	78 [53-122]	0.293
HAD total (median)	17 [7-32]	17 [6-32]	14 [9-31]	0.455
HAD Anxiety (median)	9.5 [4-19]	10.5 [3-18]	6 [2-17]	0.653
HAD Depression (median)	8 [3-16]	8.5 [3-19]	8 [4-16]	0.622

Examples of positive glucose breath tests





A: Representation of a H_2 positive test, with H_2 production > 12 ppm within the 90 first minutes of the test.

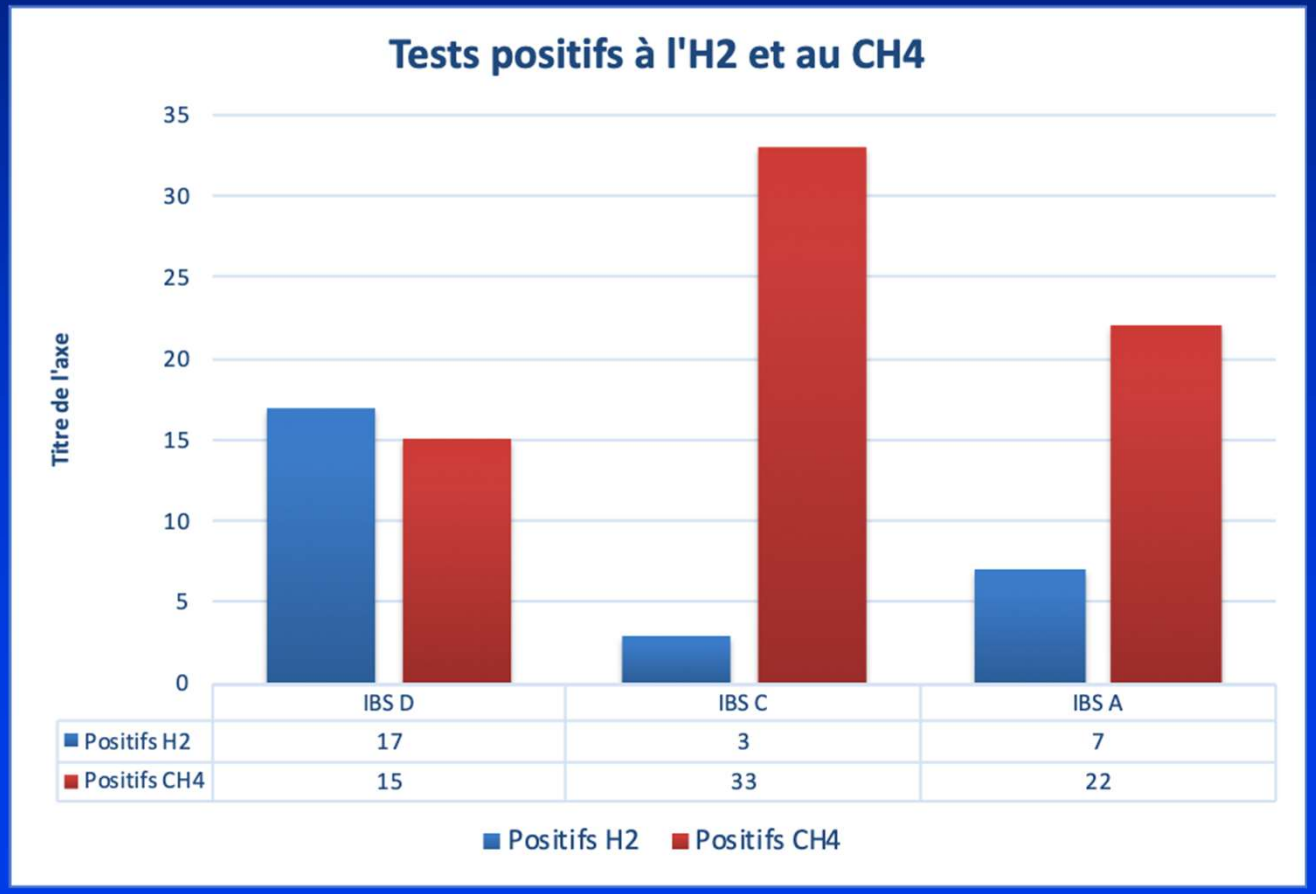
B: Representation of a positive CH_4 test, with gas production surpassing the 10 ppm threshold.

Prevalence of SIBO in IBS and subtypes

*Prévalence of SIBO **38,8%** of IBS (97/250)*

10,8% (N=27) à l'H2

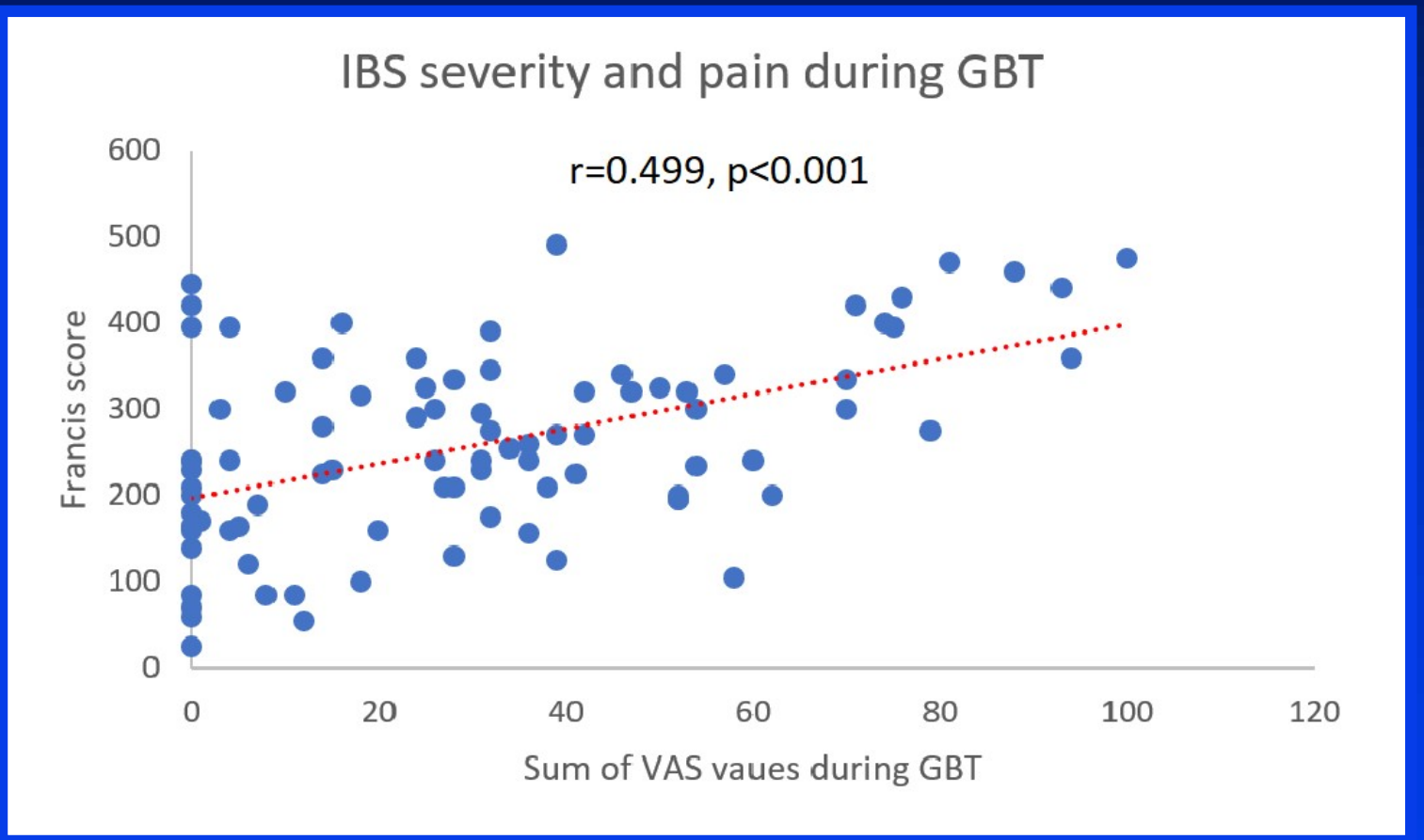
28,8% (N=70) au CH4



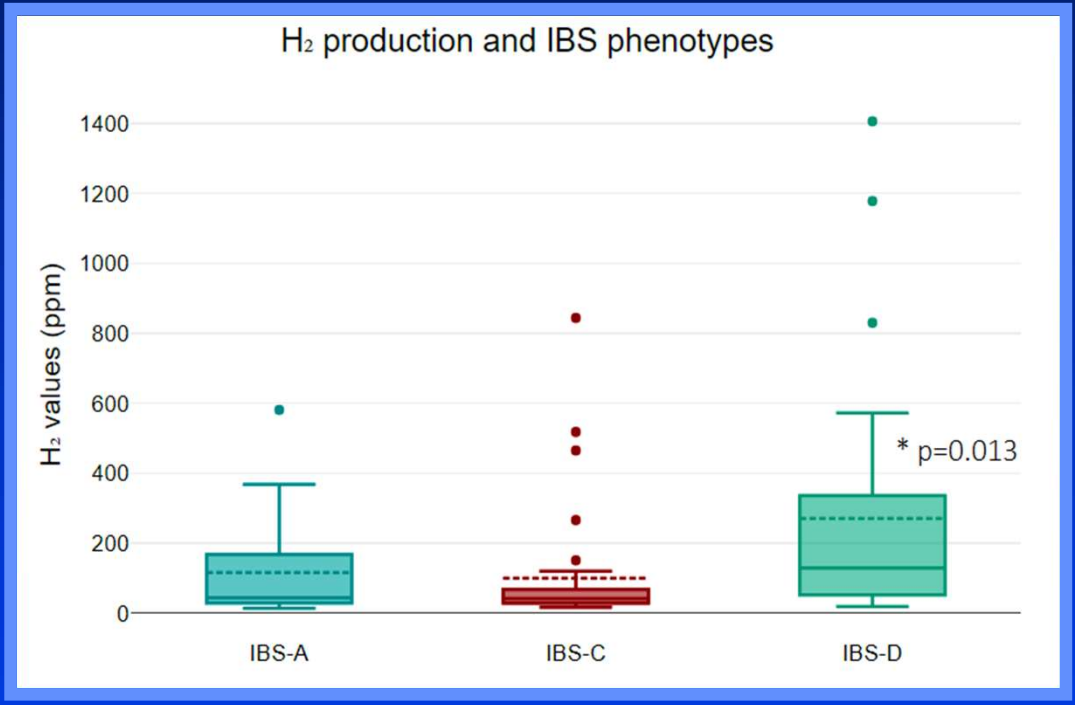
Clinical score according to the result of Glucose Breath Tests

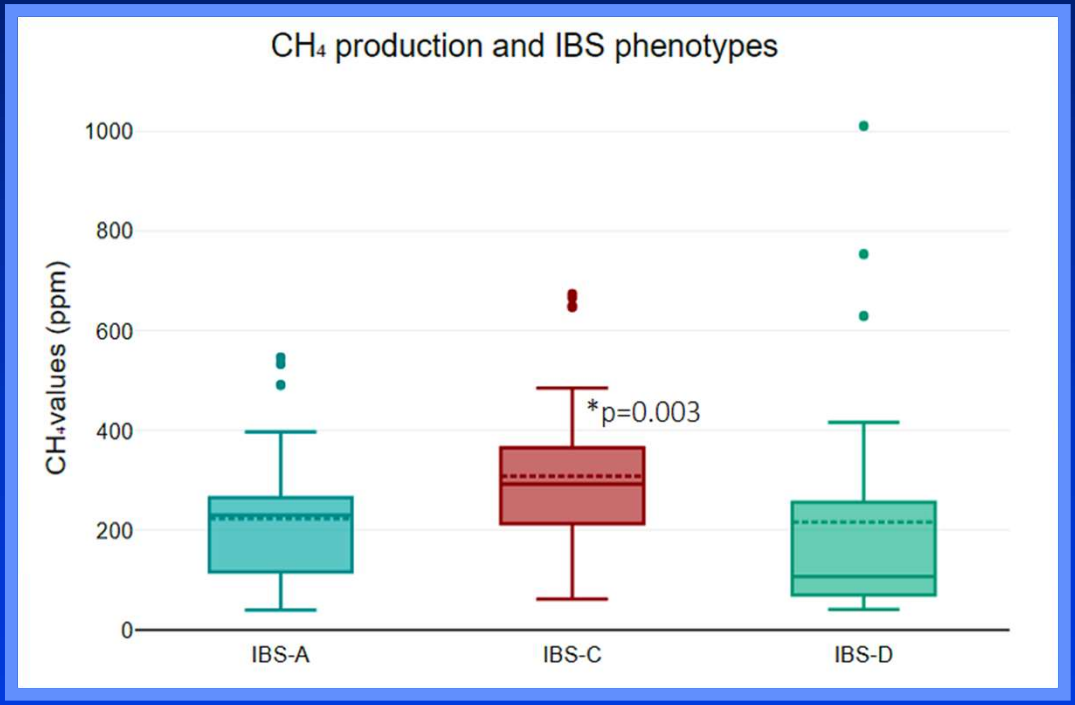
Clinical scores	Positive GBT	Negative GBT	P value
Francis score	240 [55-490]	275 [100-496]	0.316
GIQLI	78 [44-114]	71 [30-108]	0.273
HAD	17 [7-32]	18 [6-35]	0.919
HAD Anxiety	8.5 [4-19]	10 [4-20]	0.679
HAD Depression	7 [2-17]	9 [1-20]	0.582

IBS Severity correlates well with VAS scores during GBT



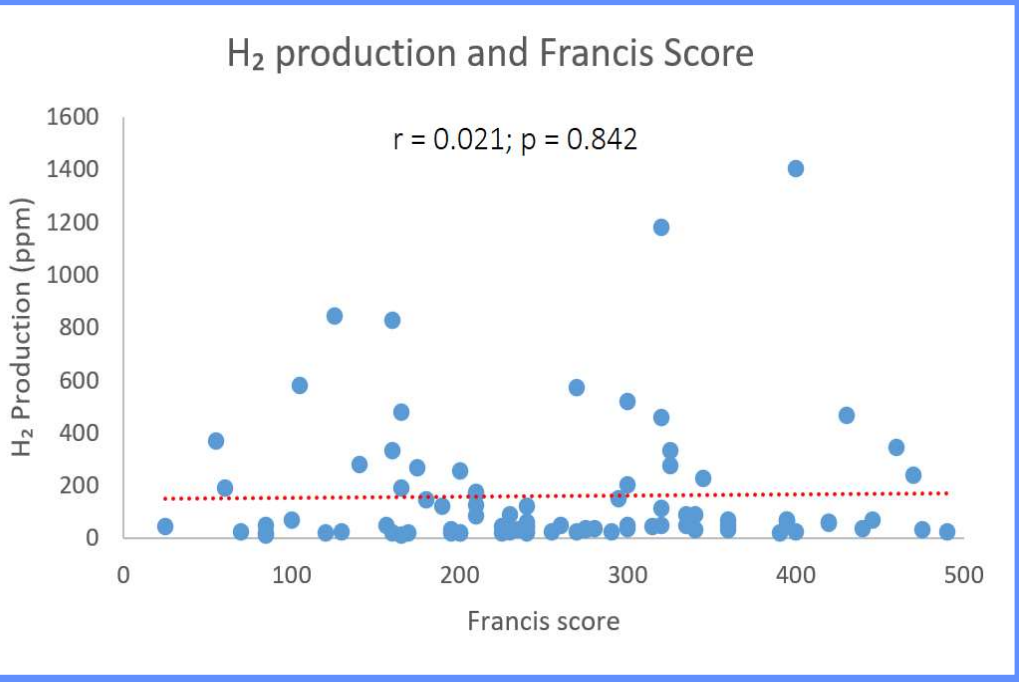
Gases production according to IBS phenotypes

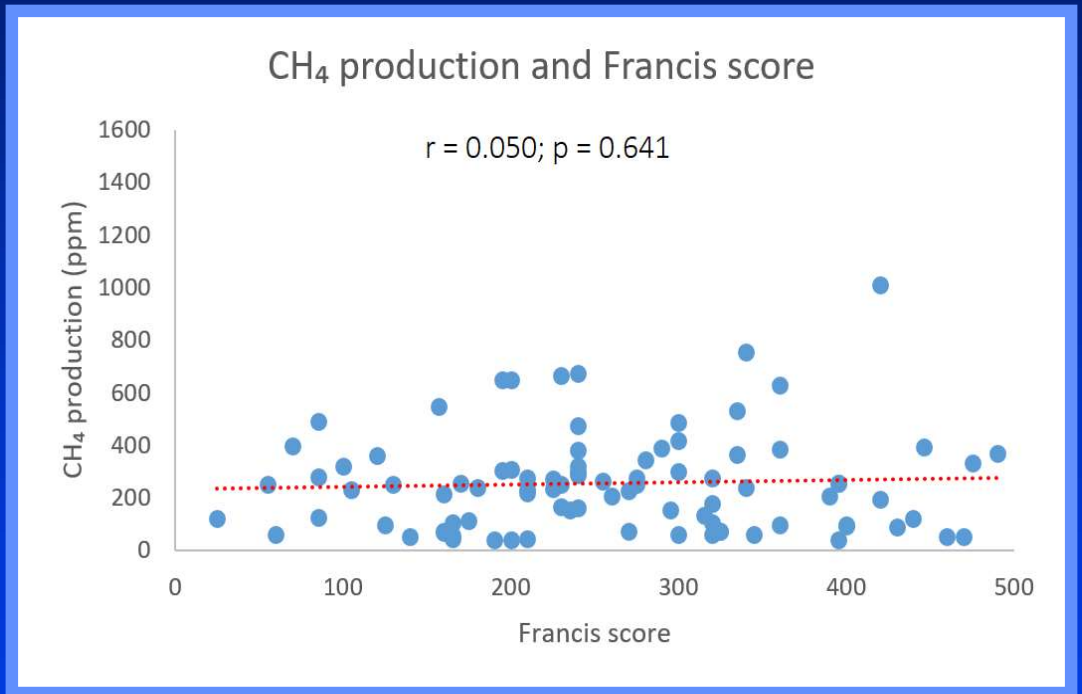




Gases production according to Francis score

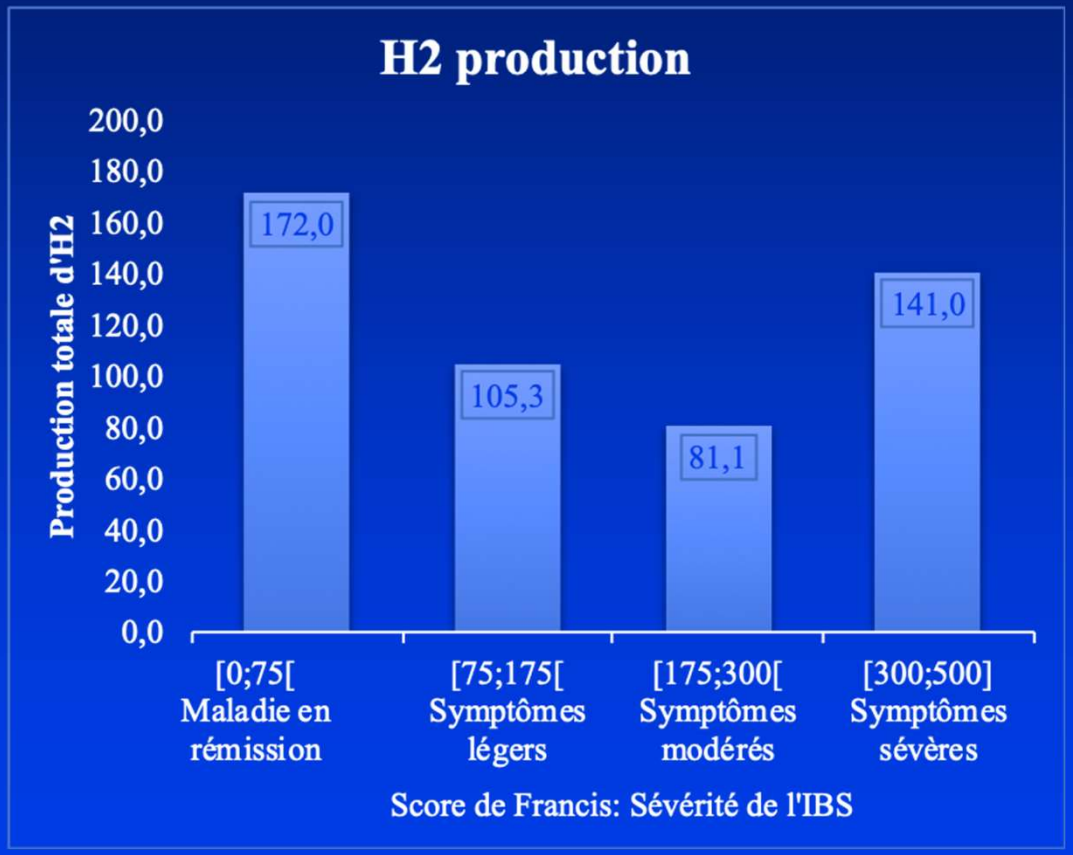
No association between gases production and IBS severity

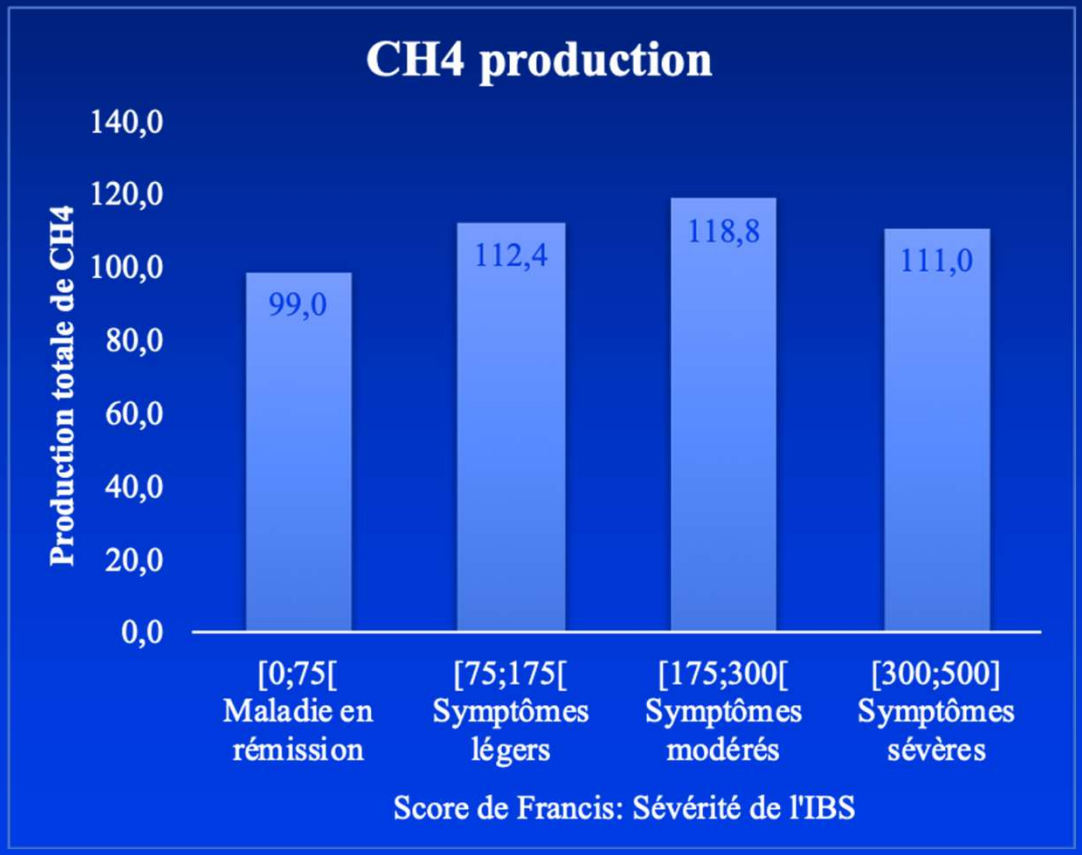




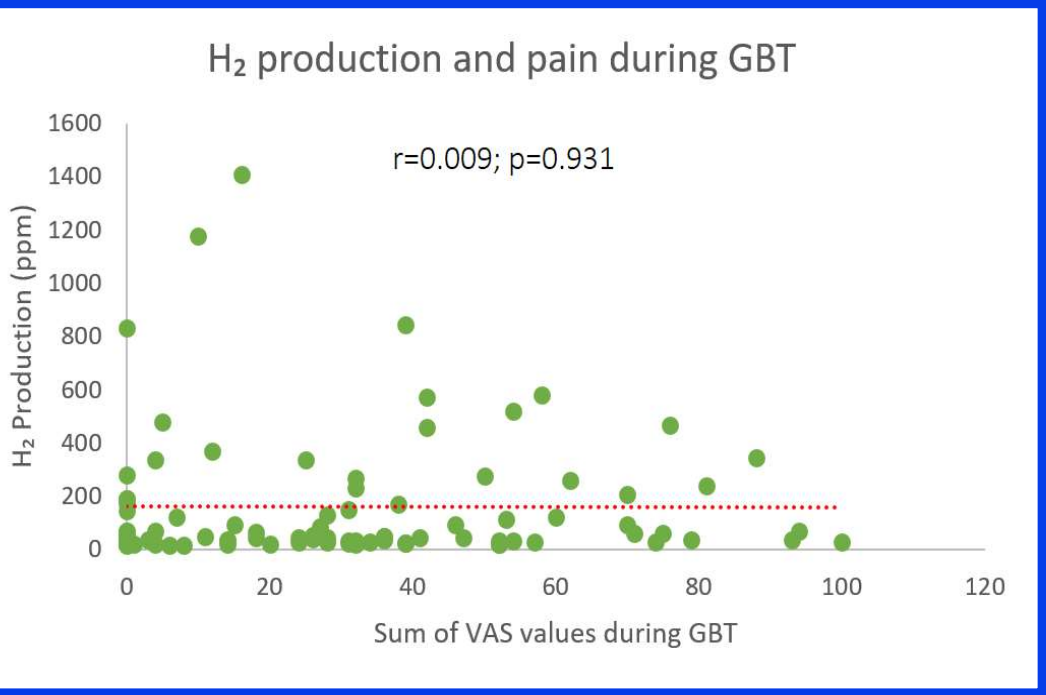
Gases Production according to Francis score class of severity

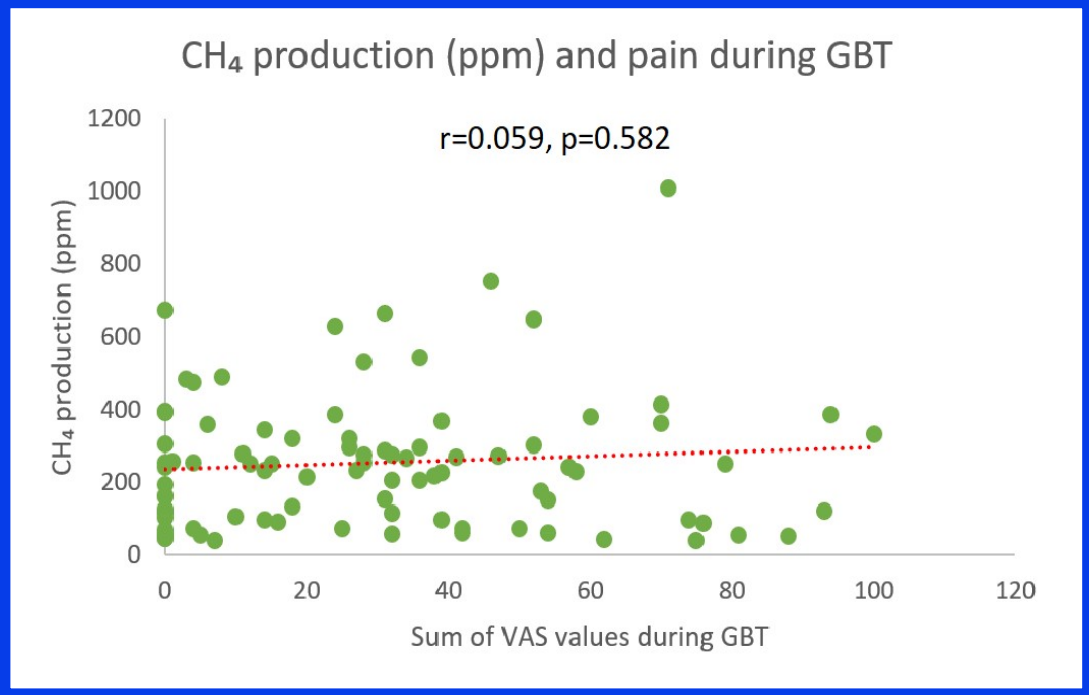
- No association between gases production and IBS severity





Gases production and pain/incomfort reported during GBT





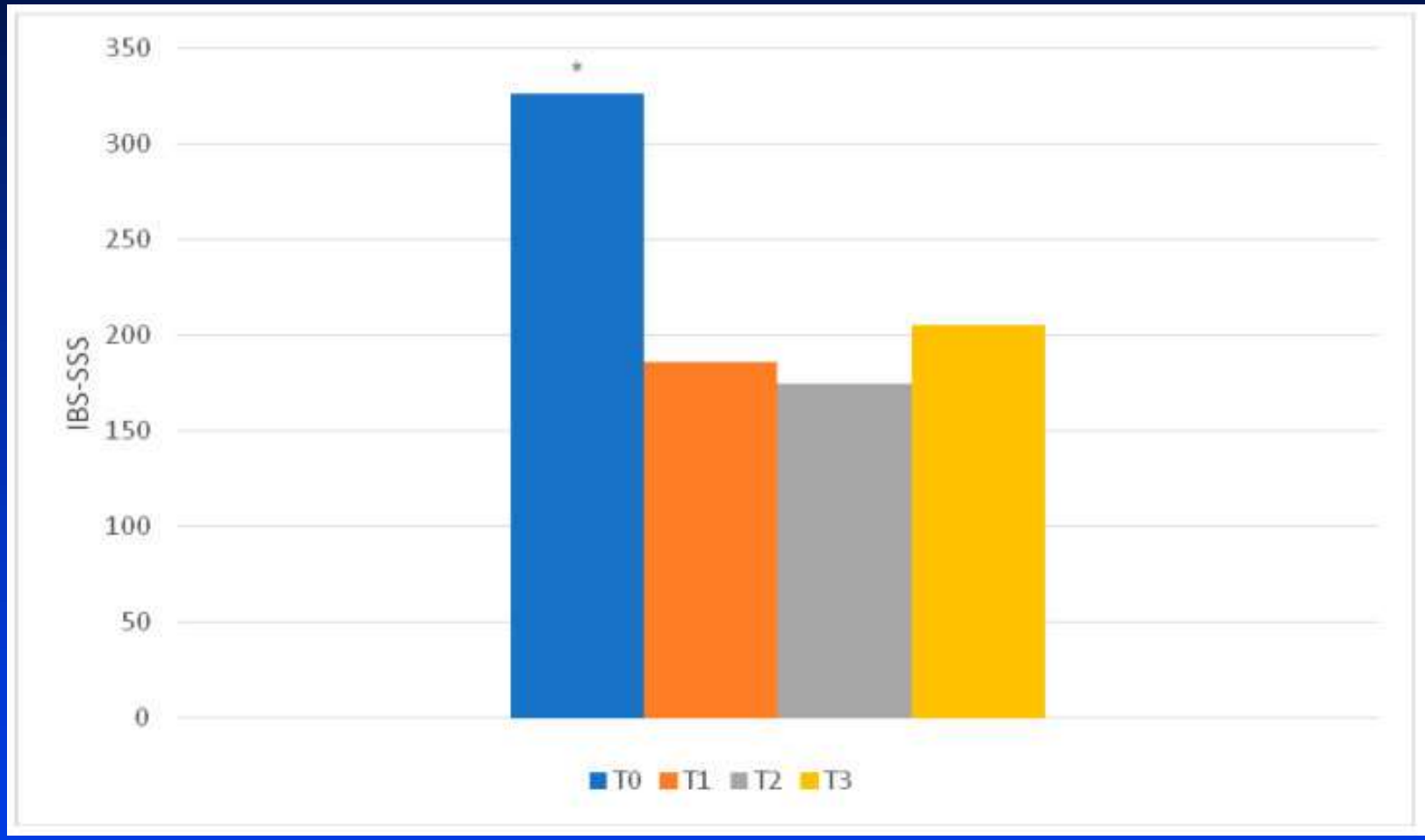
Association between H_2 Production and QOL related Depression traits

- *Regarding CH4 specifically, its production was not correlated with quality of life (GIQLI score; r = 0.001; p = 0.993, nor with the HAD D depression scale (r = -0.149; p =0.059), nor with the HAD A anxiety scale (r= -0.192 p=0.07).*
- *In contrast, H2 production was inversely correlated with quality of life (GIQLI score; r = -0.236; p =0.025) and significantly correlated with the HAD scale (total HAD; r = 0.224; p = 0.034). This correlation was significant on depression (HAD D; r=0.218; p= 0.039) but not significant on anxiety (HAD A; r=0.165; p=0.119).*

Conclusion

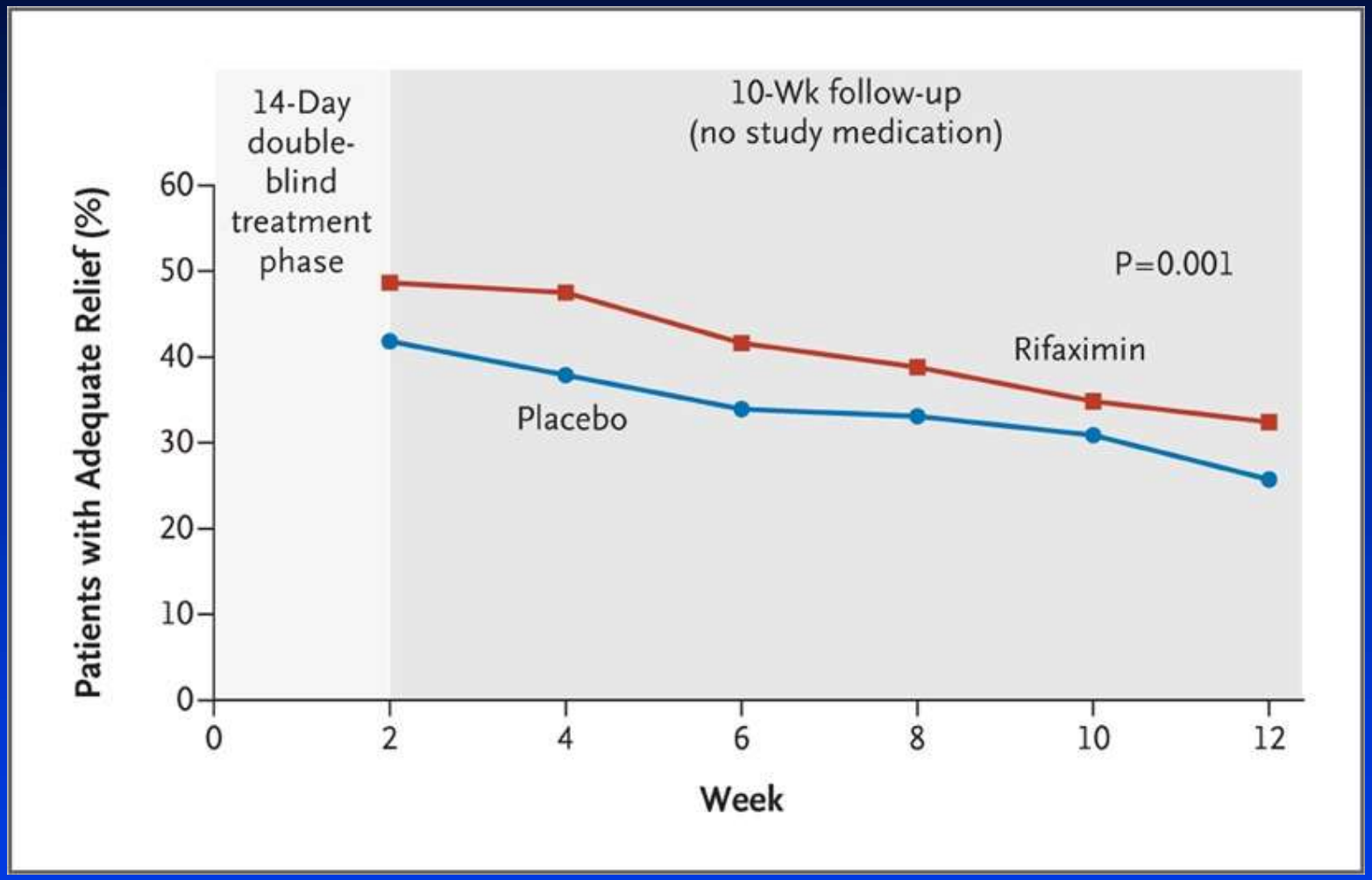
- GBT are useful to detect SIBO in IBS (38.8%)
- The volume of gas is not associated with IBS symptoms
- Other produts of fermentation process could be involved in symptoms generation
- H_2 is more related to IBS-D while CH_4 is more related to IBS-C
- GBT could therefore be helpful to target Rifaximin

A Low-FODMAP Diet for IBS
Answers to the Doubts from a Long-Term Follow-Up



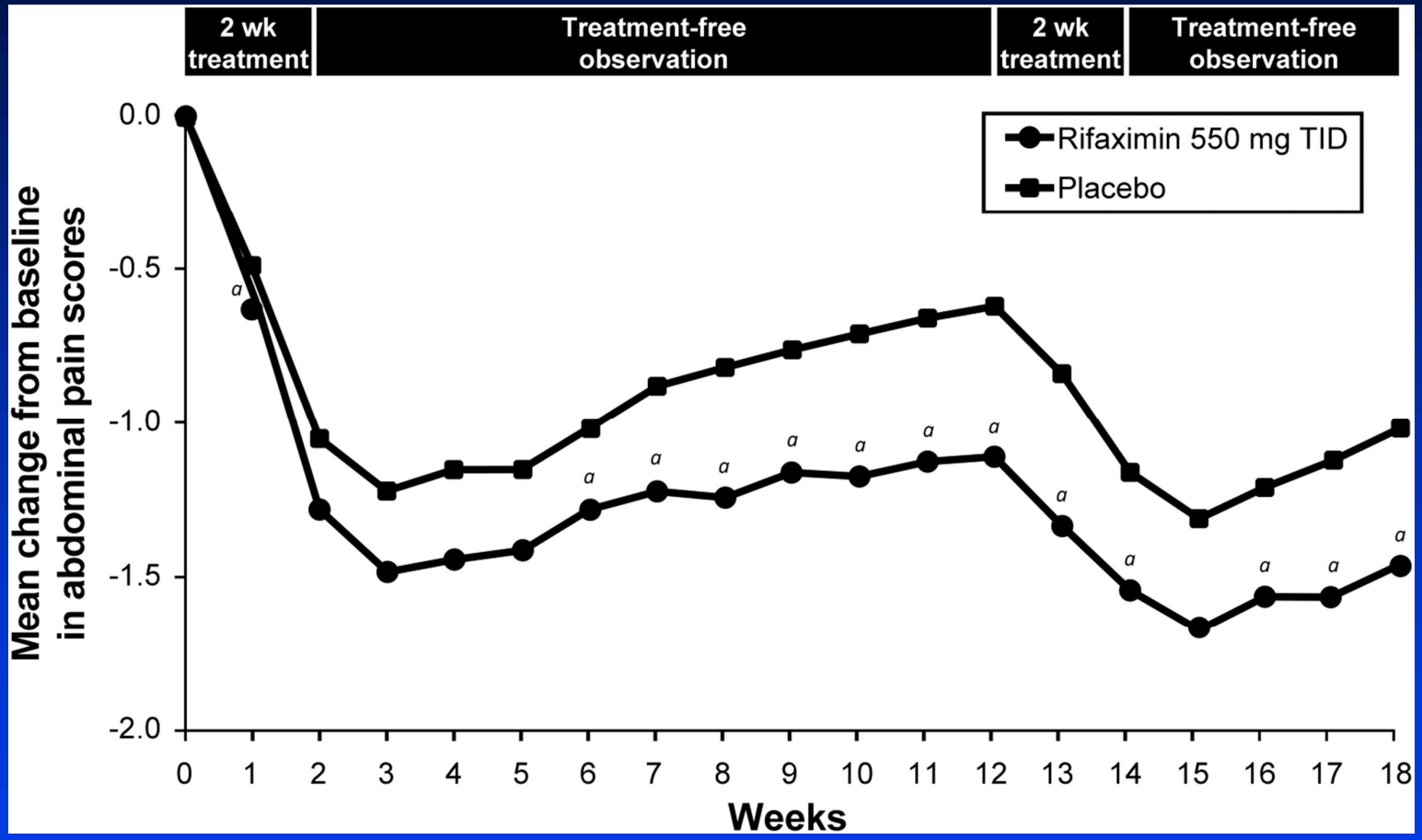
Bellini M et al., Nurients 2020

Rifaximin for Patients with IBS-D



Pimentel M et al., N Engl J Med 2011

Repeat Treatment With Rifaximin Is Safe and Effective in Patients With IBS-D



Lembo A et al., Gastroenterology 2016