

# **Is duodenal biopsy always necessary in adults with a high titre of Anti-tissue transglutaminase (TTG) antibodies?**

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# Background

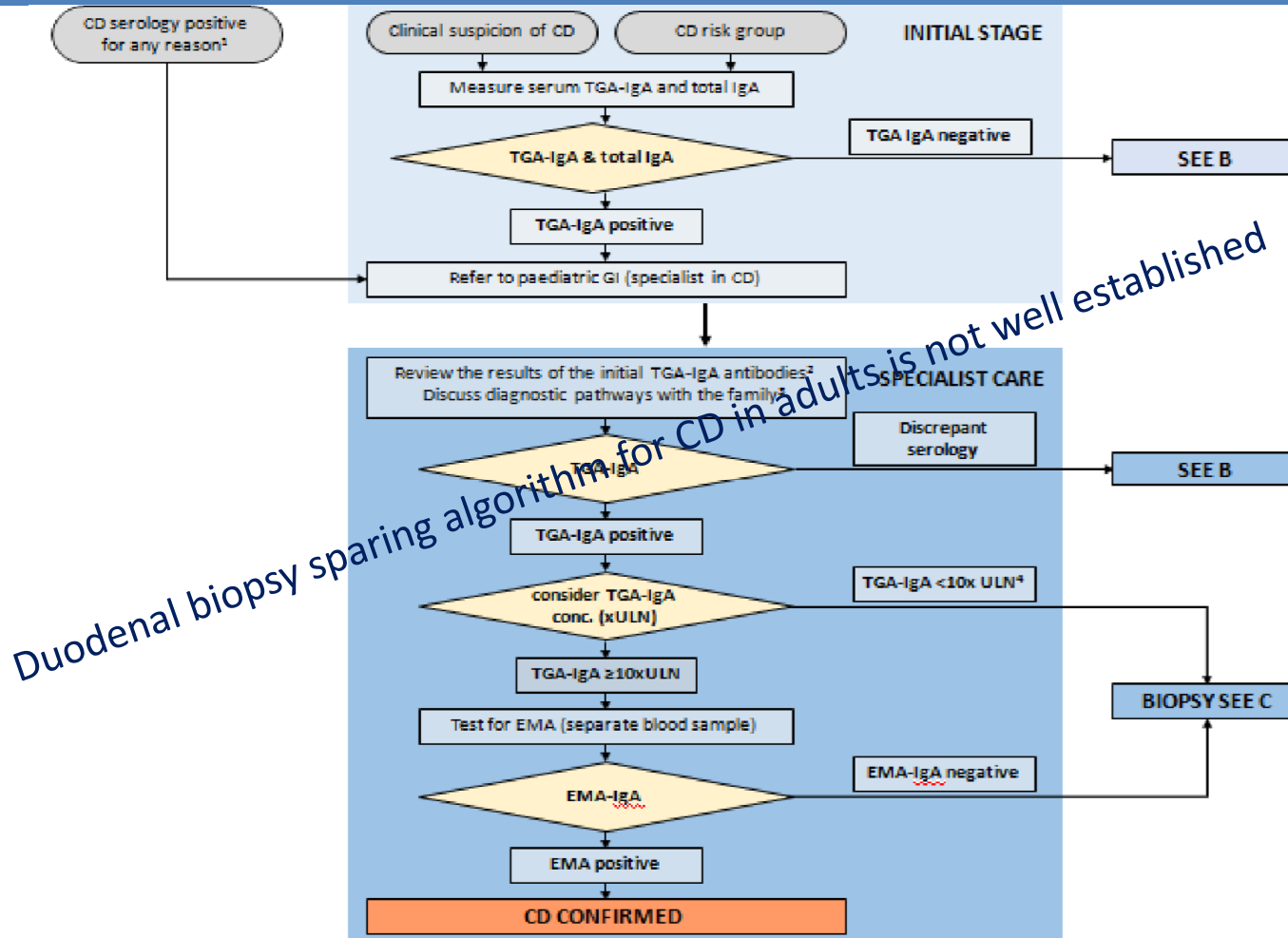
- Gold standard for the diagnosis of CD was small intestinal histology
- Serological test are believed to have a higher sensitivity and specificity for CD

## PPV for the diagnosis of coeliac disease at different IgA anti-TTG cut off

TGA (U/ml)	Not CD ( <i>n</i> )	CD ( <i>n</i> )	TGA cut-off as U/ml	TGA cut-off as ×ULN	PPV
5–10	3	37	> 4.9	1	92
10.1–15	8	31	> 10	2	92
15.1–20	3	21	> 15	3	95
20.1–25	2	7	> 20	4	96
25.1–30	1	17	> 25	5	97
30.1–35	1	14	> 30	6	98
35.1–40	2	12	> 35	7	98
40.1–45	0	7	> 40	8	100
45.1–50	0	4	> 45	9	100
50.1–70	0	22	> 50	10	100
70.1–100	0	20	> 70	14	100
> 100	0	50	> 100	20	100
Totals	20	242	–	–	–

CD, coeliac disease; PPV, positive predictive value; TGA, tissue transglutaminase antibody; ULN, upper limit of normal.

# ESPGHAN Guidelines for Diagnosis of Coeliac Disease 2019

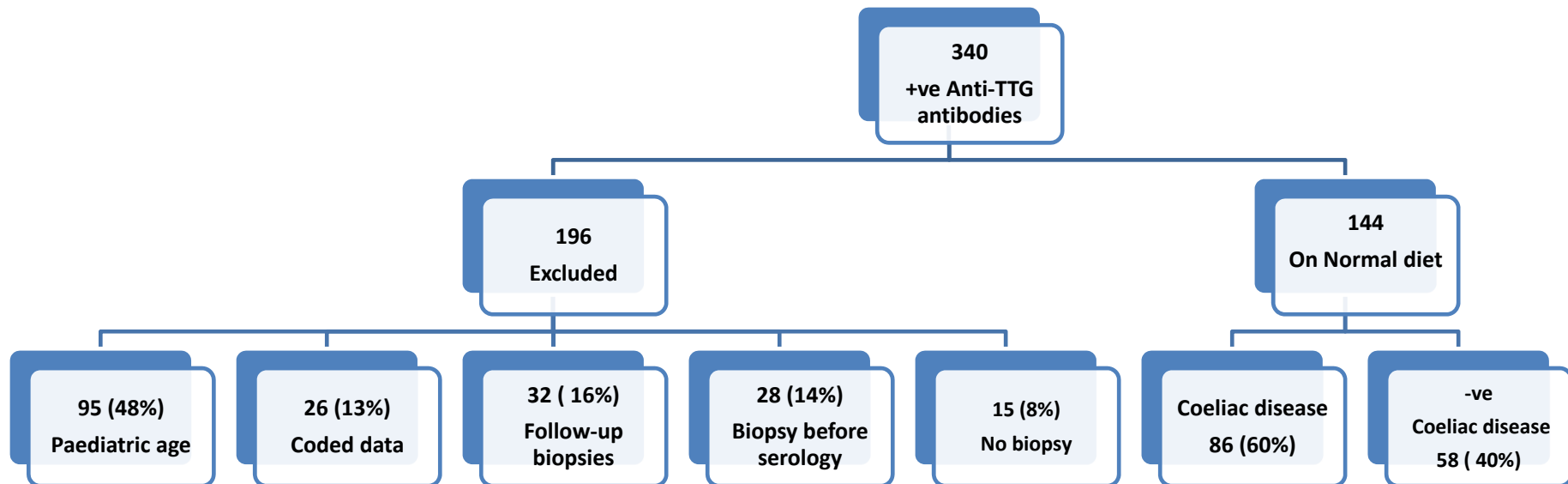


## Aim

- To identify a reliable cut-off value of anti-TTG titres in the diagnosis of CD without undertaking duodenal biopsy in adult patients

# Study design

- Single Centre retrospective study at CMDHB
- Lab data (2013 – 2018) of +ve Anti-TTG antibodies

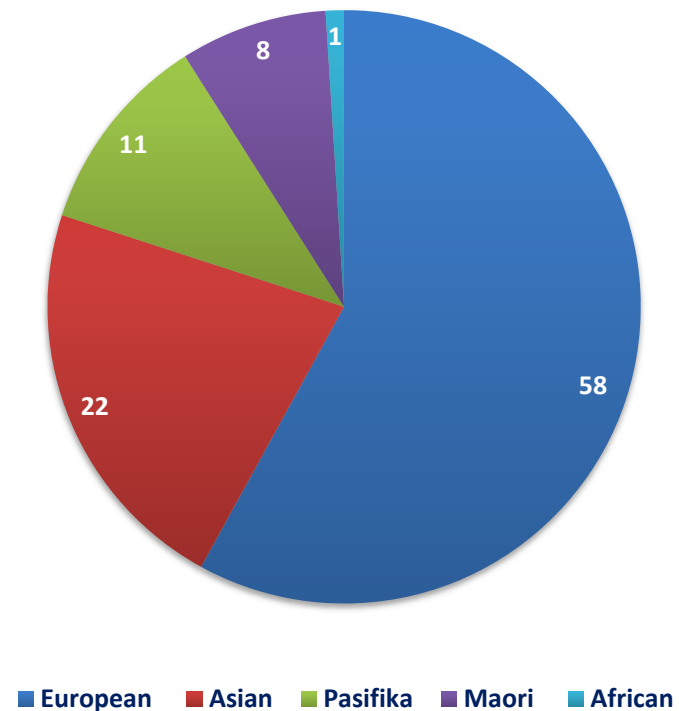


# Patient characteristics

**n = 144**

Male; n (%)	54 (37)
Female; n (%)	81 (62)
Age (yrs.) ; md (IQR)	48.5 (31-62)
Serology to biopsy time (days); md (IQR)	129 (39–209)
Number of biopsies; md (IQR)	2 (1-4)

**Ethnicity (%)**

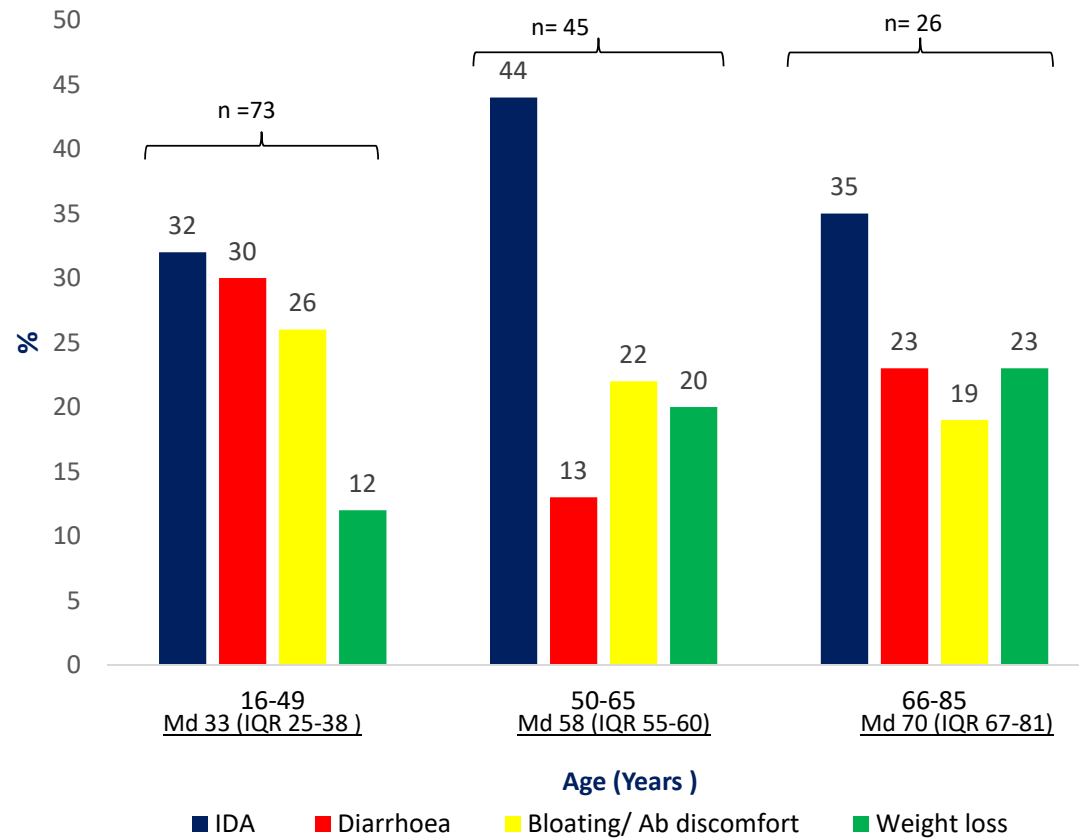


# Patient characteristics

Variables	Values
<b>Indications for Coeliac investigations</b>	
IDA; n (%)	52 (36)
Diarrhoea; n (%)	34 (23.5)
Abdominal pain/ bloating ; n(%)	34 (23.5)
Weight loss ; n(%)	24 (17)
<b>Comorbidities</b>	
T1 /T2 Diabetes Mellitus ;n (%)	5 (3)
Hypo/Hyperthyroidism ; n(%)	9 (6)
Asthma ; n (%)	6 (4)
Chronic liver disease ;n (%)	8 (5)
Autoimmune diseases	5 (3)
<b>Macroscopic features on OGD</b>	
Normal n (%)	70 (49)
Flattening of mucosa n (%)	35 (24)
Scalloping n (%)	27 (19)
Erythema n (%)	11 (8)
<b>Duodenal histology</b>	
Normal ;n (%)	58 (40)
Marsh 1 ; n(%)	9 (6)
Marsh 2 ; n( %)	9 (6)
Marsh 3 ;n (%)	68 (47)



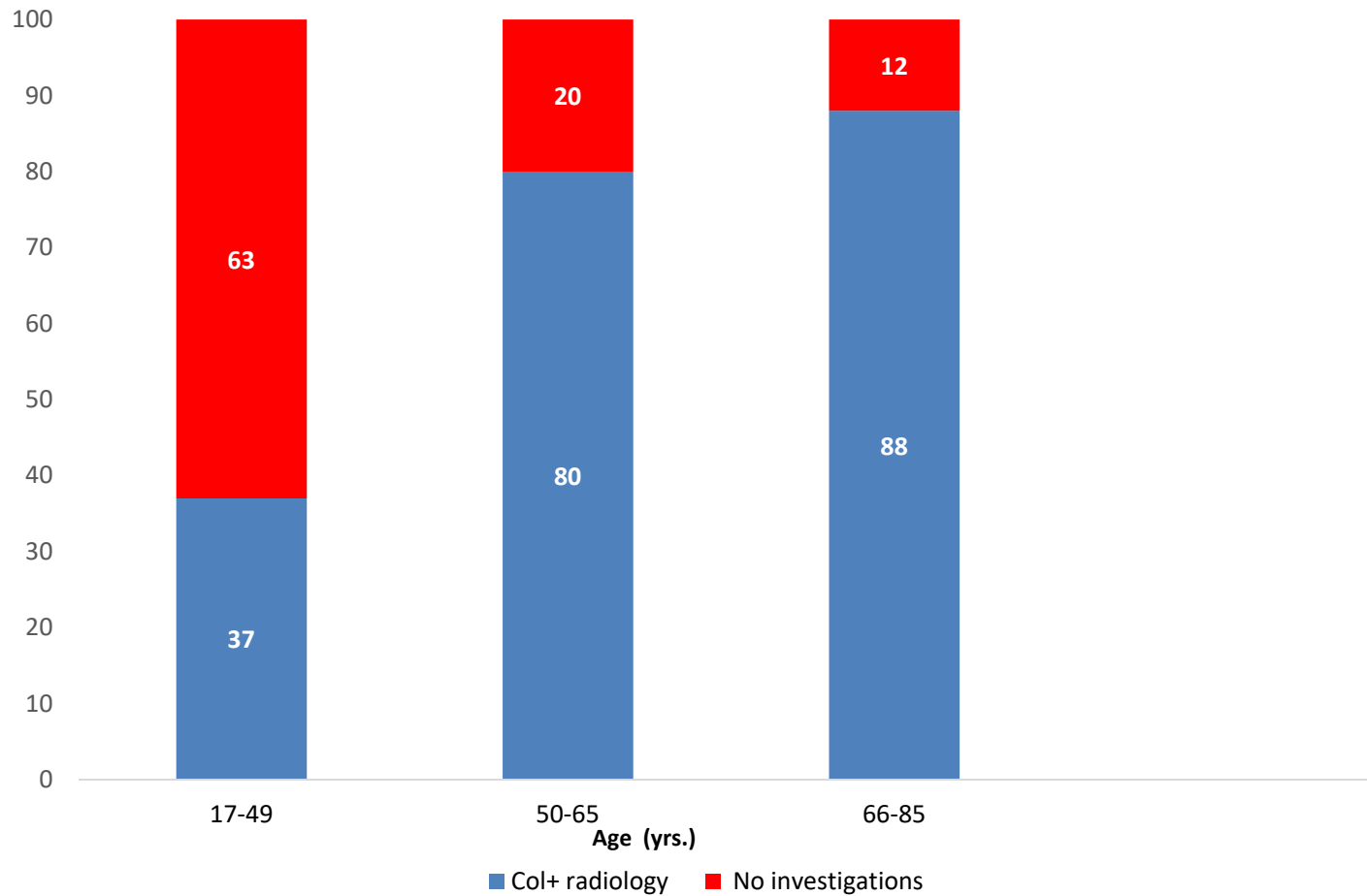
# Age –specific symptoms



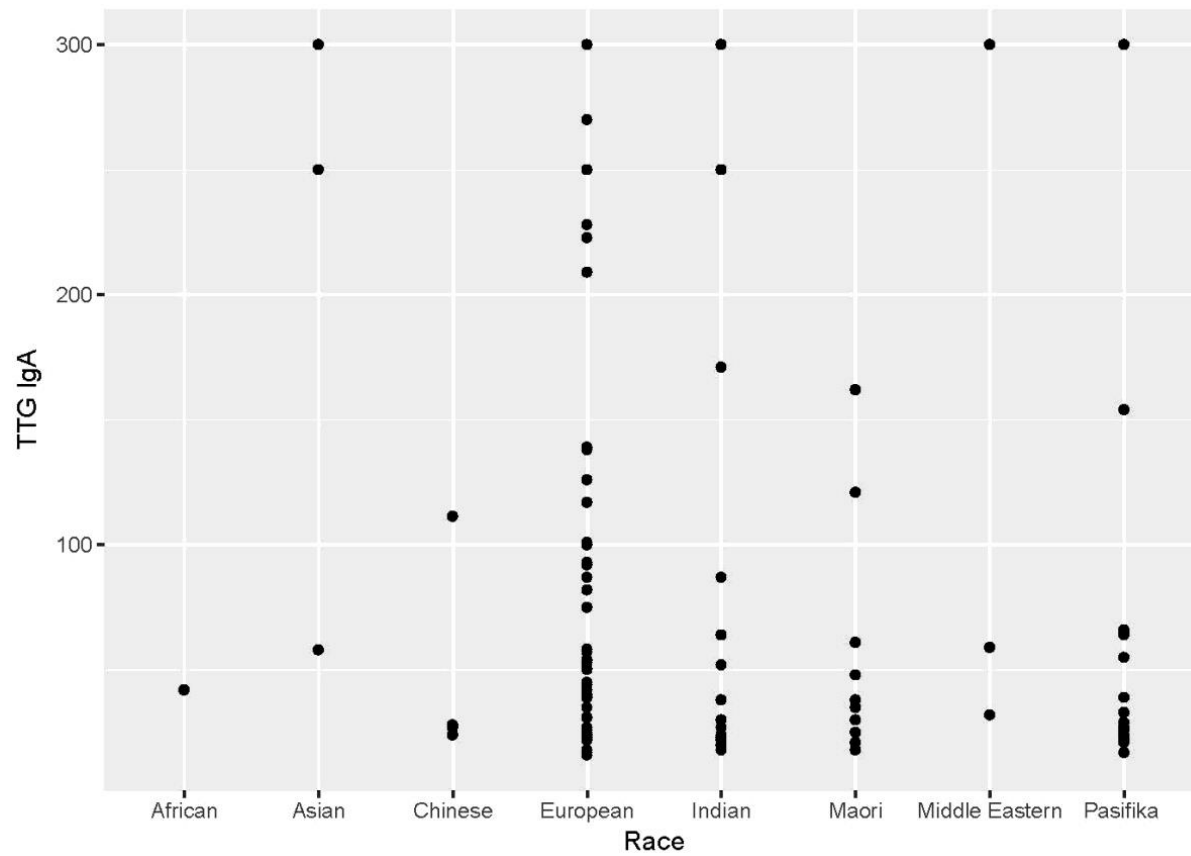
## Further Investigations and other diagnosis

<b>Investigations</b>	<b>Value</b>
Colonoscopy ; n (%)	82(57)
Colonoscopy with radiology ; n (%)	4 (3)
Radiology (CT/MRI) ; n (%)	5 (3)
Capsule study ; n (%)	1( 0.7)
<b>Other Diagnosis</b>	
Ulcerative colitis ; n (%)	1(0.7)
Small bowel cancer ; n (%)	1(0.7)
Microscopic colitis ; n (%)	1 (0.7)

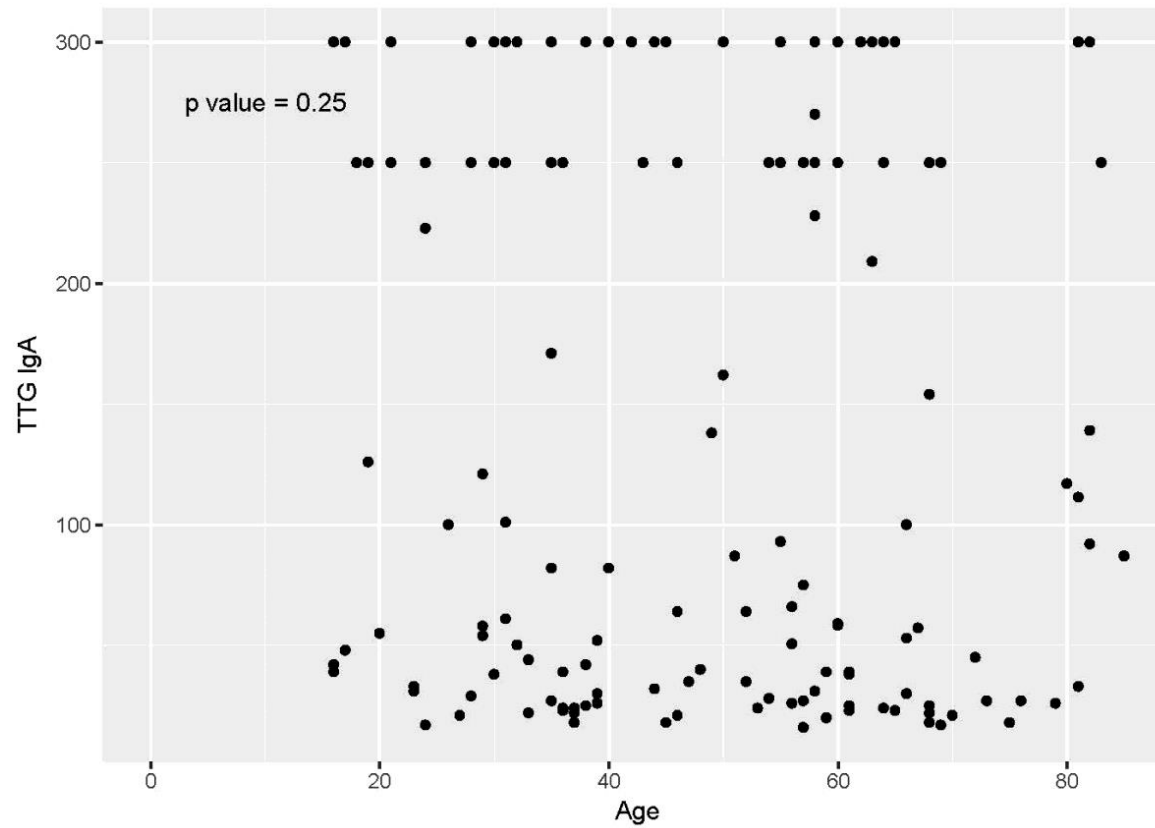
# Age distribution of further Investigations (%)



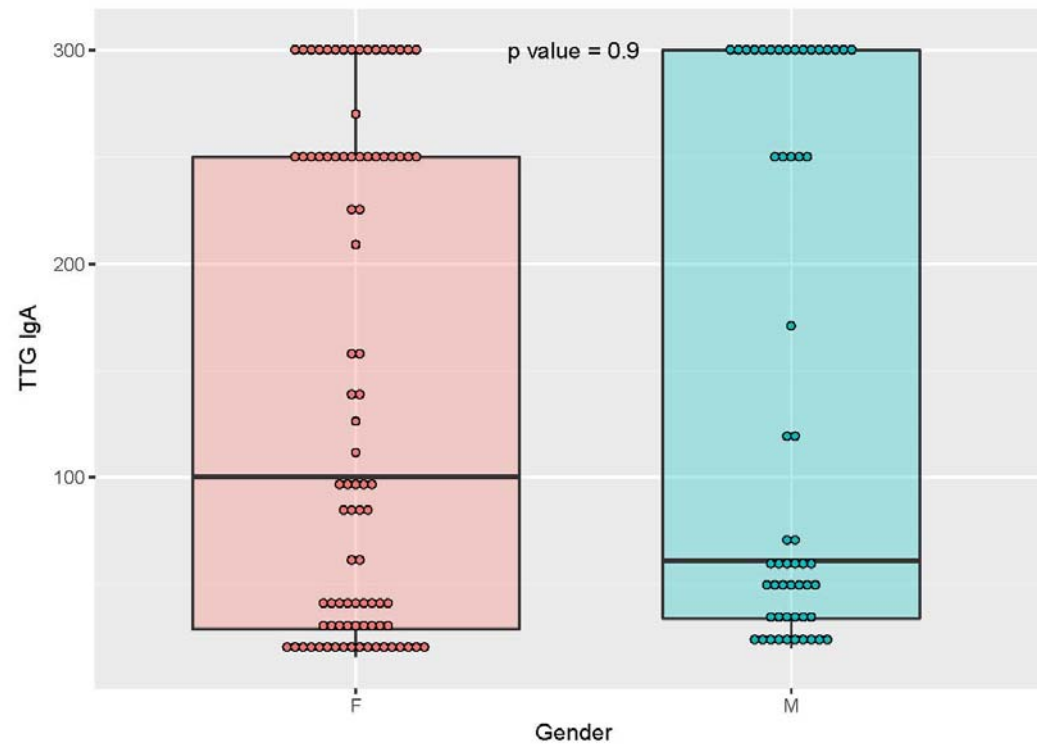
# Differences of Anti-TTG IgA titres by race



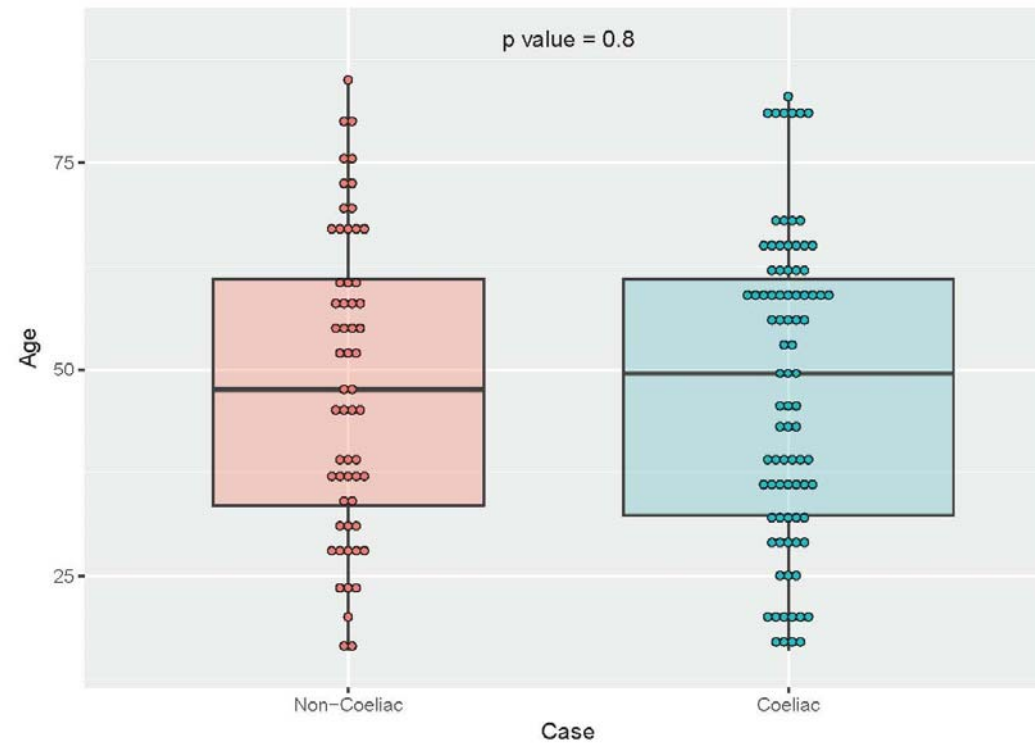
# Differences of Anti-TTG IgA titres by age



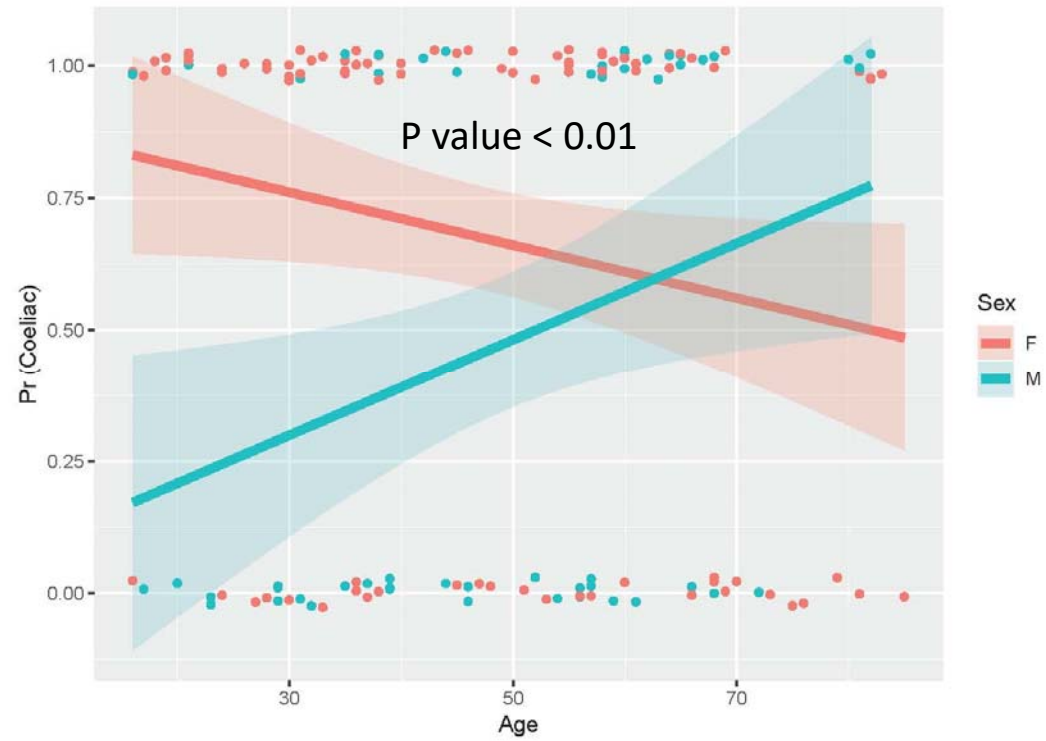
# Anti-TTG IgA titres difference by gender



# Age distribution by disease status

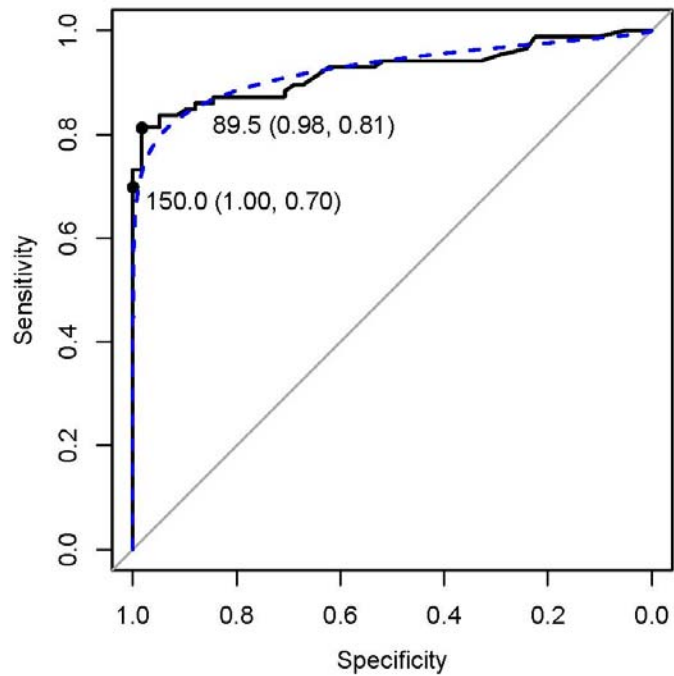


# Disease status by age & gender



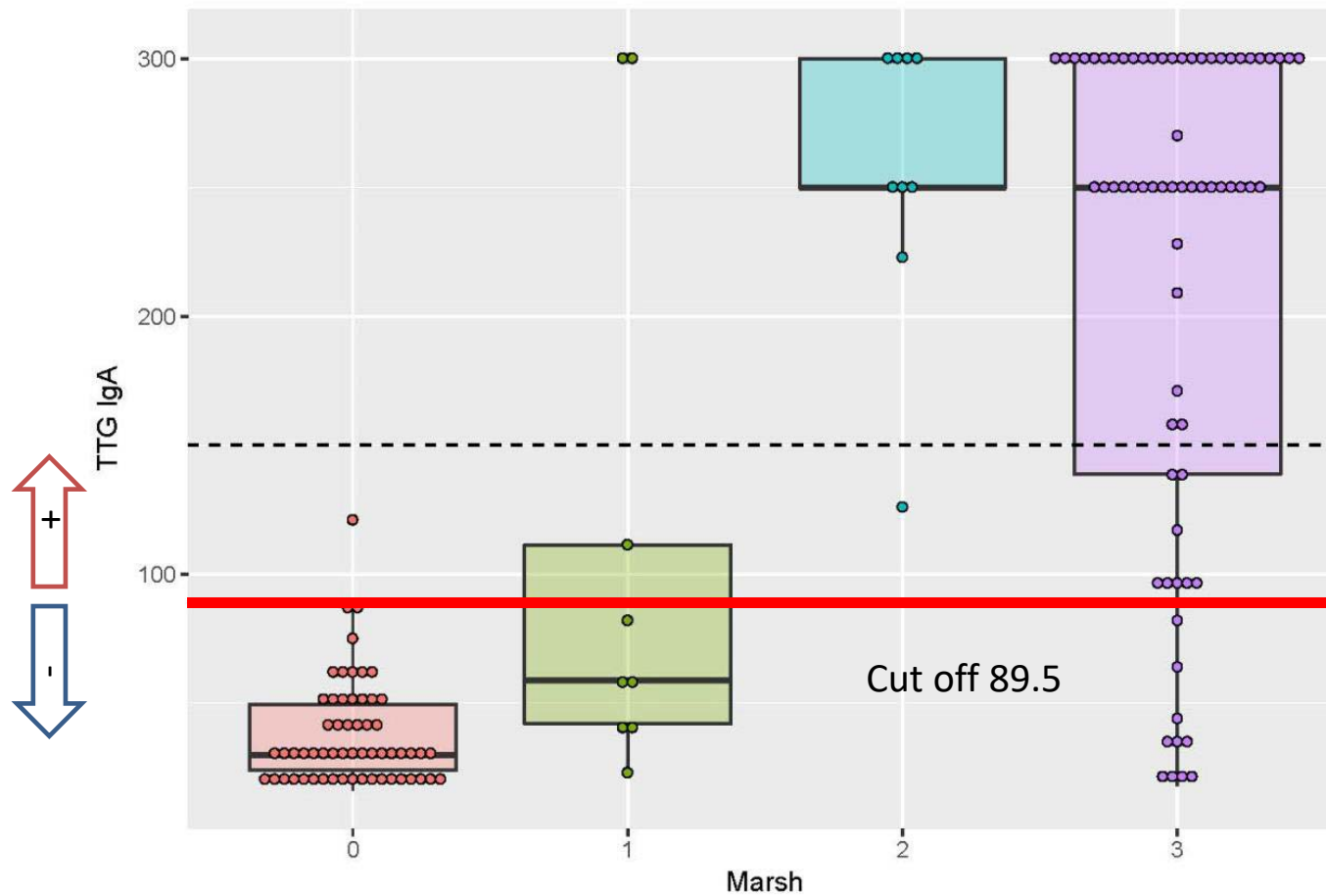


## Performance of Anti-TTG IgA as a predictor of Marsh scores

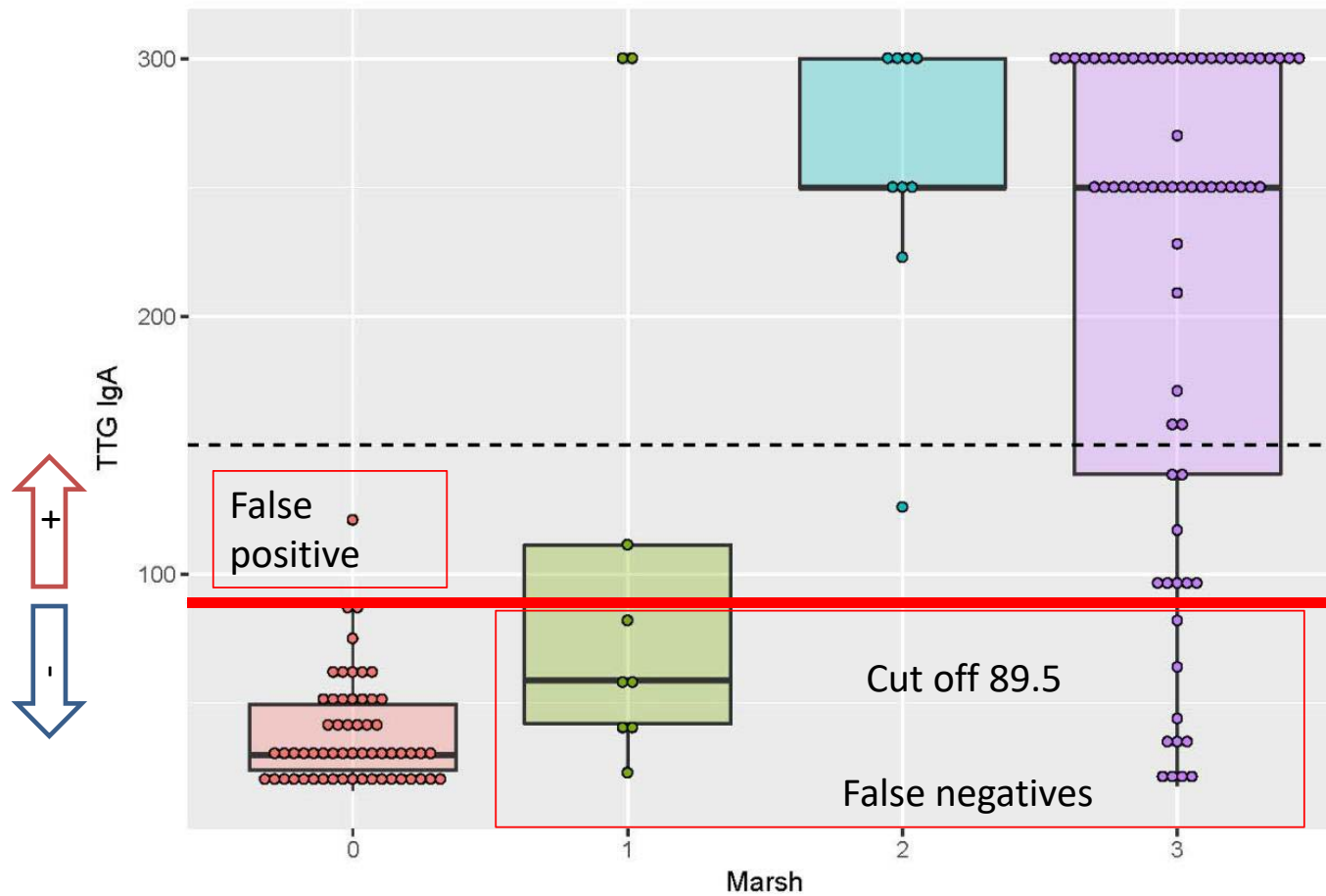


Threshold titre	150	89.5 (57.0-94.0)
Sensitivity	0.70 (0.60-0.80)	0.98 (0.91-1.00)
Specificity	1.00 (1.00-1.00)	0.84 (0.74-0.92)
NPV	0.69 (0.63-0.77)	0.80 (0.72-0.88)
TN	55 (58-58)	57 (53-58)
PPV	1.00 (1.00-1.00)	99 (0.93-1.00)
TP	60 (52-69)	72 (64-79)

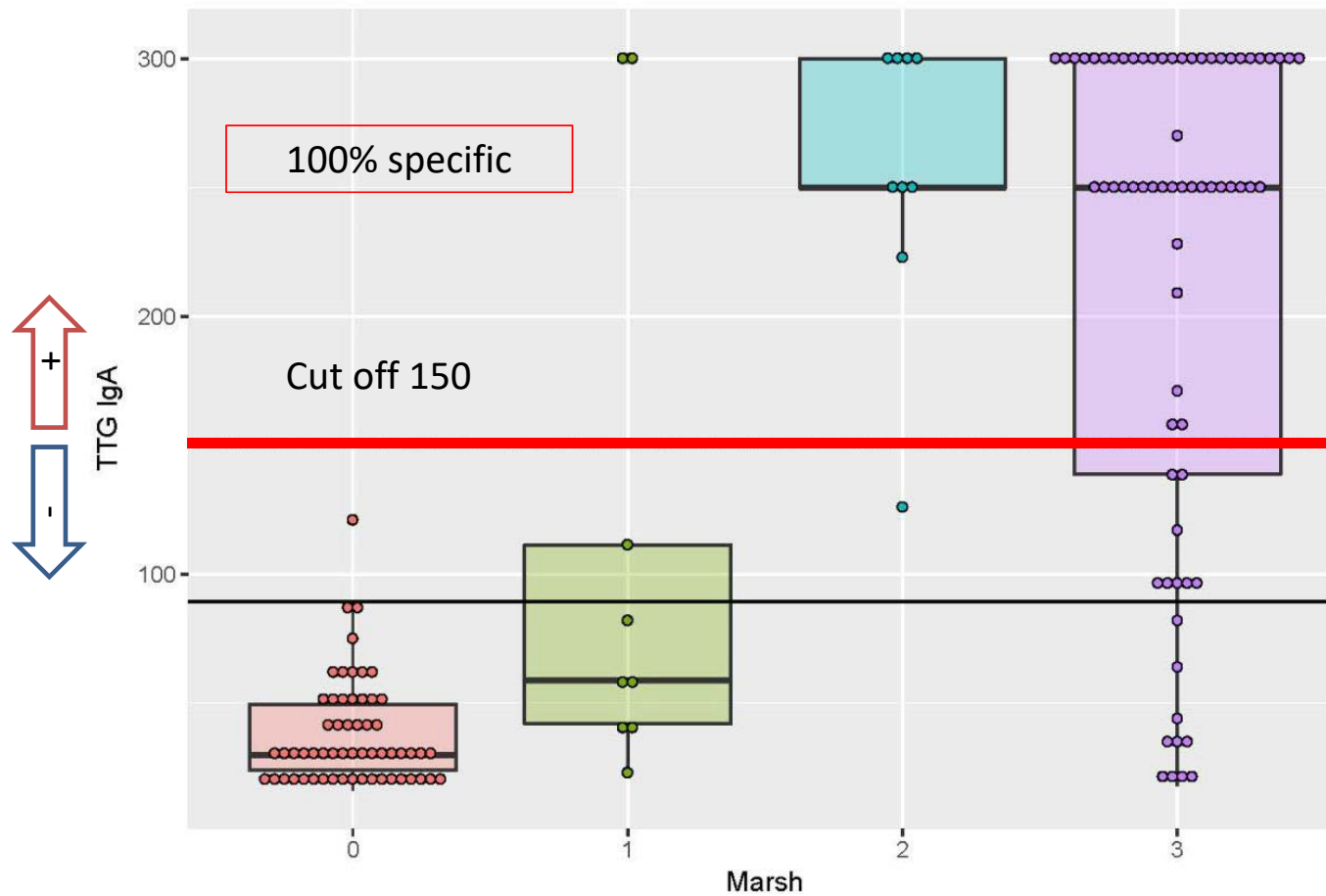
# Performance of Anti-TTG IgA as a predictor of Marsh scores



# Performance of Anti-TTG IgA as a predictor of Marsh scores



# Performance of Anti-TTG IgA as a predictor of Marsh scores



## Summary

- Retrospective study on 5 year data
- Among 144 patient - CD (60%)
- Serology to biopsy time - 129 (39–209) days
- Predominate symptom-IDA

## Summary

- $\approx$  2/3rd patients had further investigation
- No Anti-TTG level changes based on age , gender and race
- Threshold level of 150 of Anti-TTG IgA has 100% specificity

## Conclusion

- Coeliac serology using Anti-TTG IgA with titres of 10 x above normal value is an excellent predictor of CD irrespective of age, gender and ethnicity.
- It is reasonable to consider avoiding duodenal biopsy in patients < 50 years without additional red flag clinical symptoms with Anti TTG-IgA >10 x above the normal value