



Curaidh

Incidence of various tick-borne infections (TBIs) and co-infections in a cohort of patients presenting to an infectious disease clinic with Lyme-like symptoms

Thoma A¹, Avramovic G², Rajput-Ray M³, Gilbert L⁴, Madigan A², Lambert JS^{1,2}

¹University College Dublin, Ireland, ²[Mater Misericordiae University Hospital, Dublin, Ireland](#) ³Curaidh Clinic: Innovative Solutions for Pain, Chronic Disease & Work Health, Dundee, Scotland, ⁴Te?ted Oy, Jyväskylä, Finland

Outline

Background – TBIs

Methods – Retrospective analysis

Results - incidence of TBIs and co-infection, background history and response to treatment

Summary – overview of results

Conclusion – summary of the major findings



Background

The incidence and transmission of TBIs are on the rise.

Lyme Borreliosis is the predominant TBI in Ireland and Western Europe, but there are other infections and co-infections associated with ticks.

Objective: This study aimed to investigate the incidence of TBIs and co-infections within a cohort of 301 patients.

Methods

This was a retrospective analysis, of **301 patients** that presented to an infectious disease clinic with **'Lyme-like' symptoms**.

A subgroup of **enzyme immunoassay-confirmed** patients with TBIs was created and further classified based on **infection type**.

The **incidence of tick-borne infections and co-infections** in the subgroup was analysed.

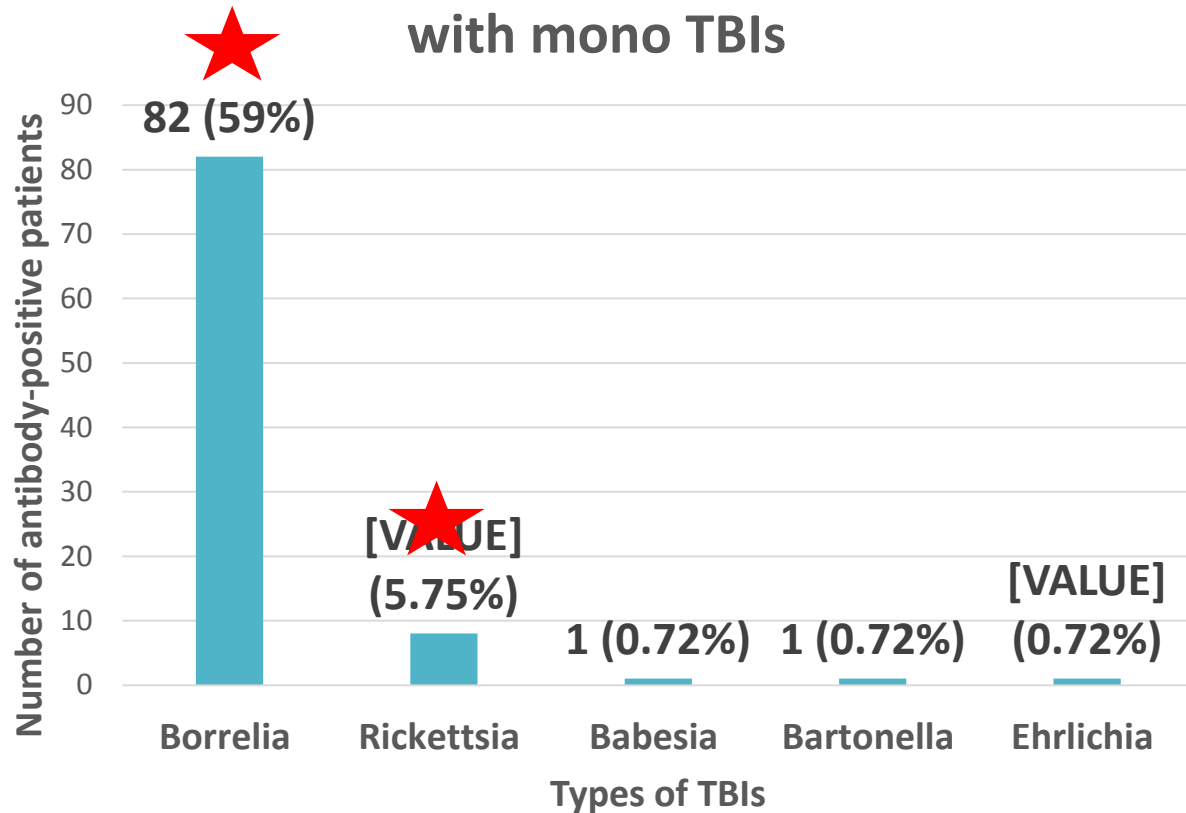
Types of TBI Infections

- **Borrelia** - IgG, IgM, Round body IgG, Round body IgM
- **Babesia** – IgG and IgM
- **Bartonella**– IgG and IgM
- **Ehrlichia**– IgG and IgM
- **Rickettsia** – IgG and IgM

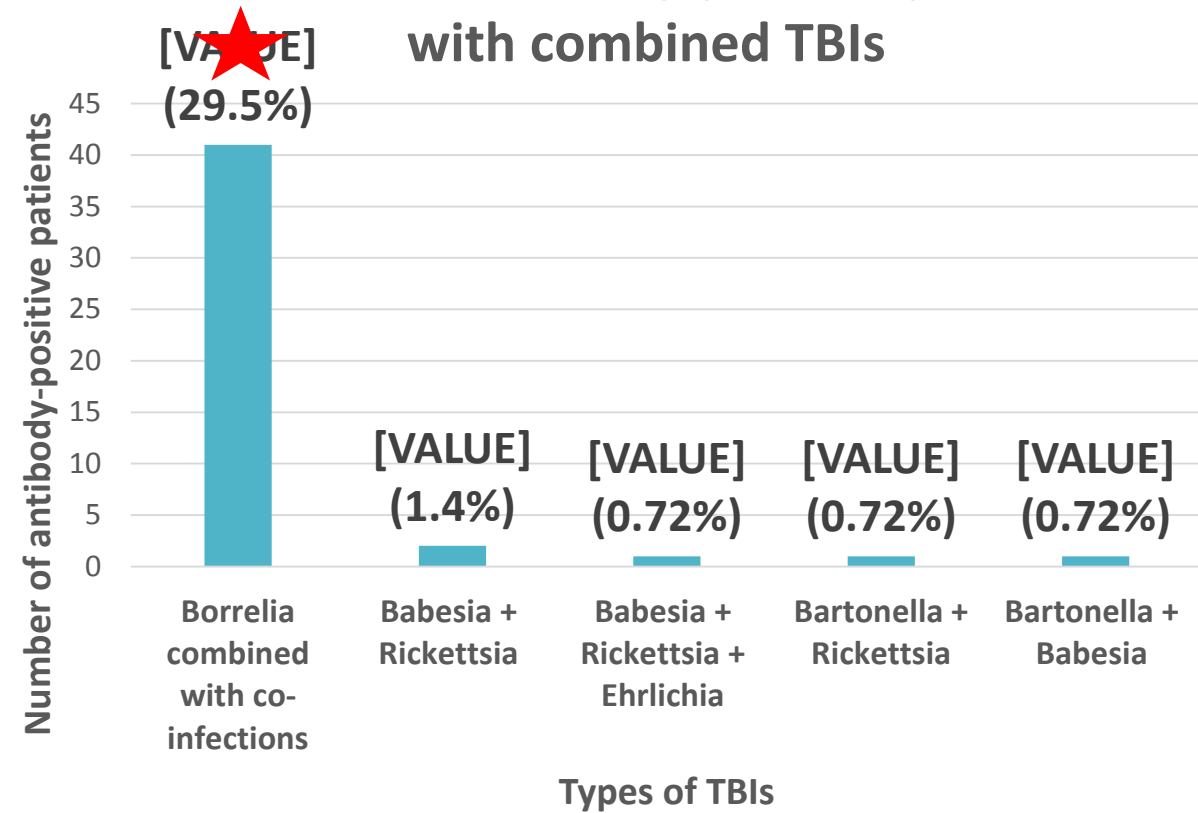
Results

From a cohort of 301 patients that presented to an infectious disease clinic, **139 (46.18%)** patients were antibody-positive

Number of antibody-positive patients with mono TBIs

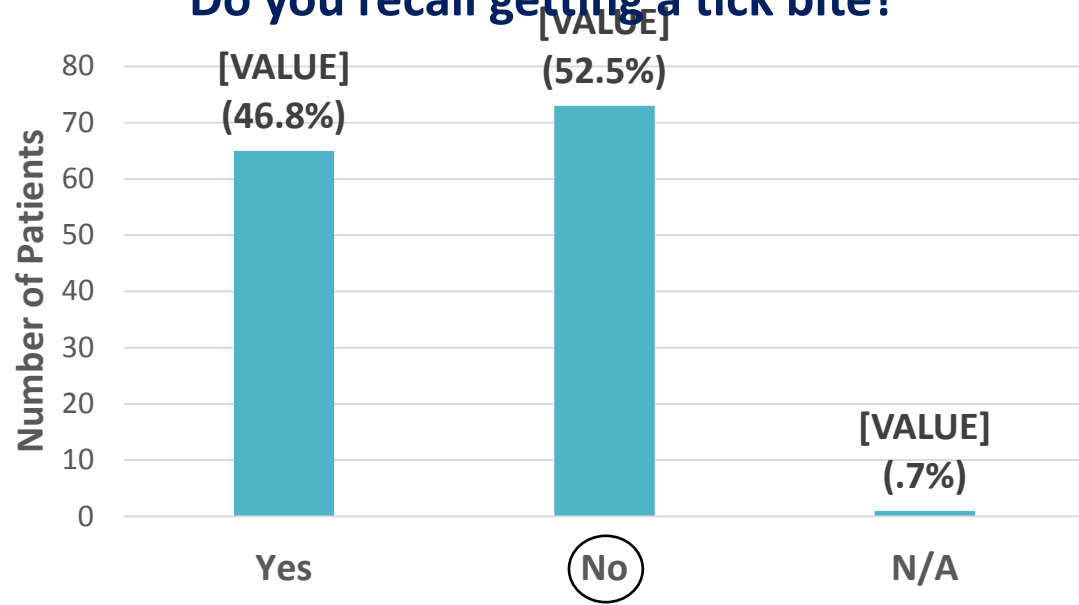


Number of antibody-positive patients with combined TBIs

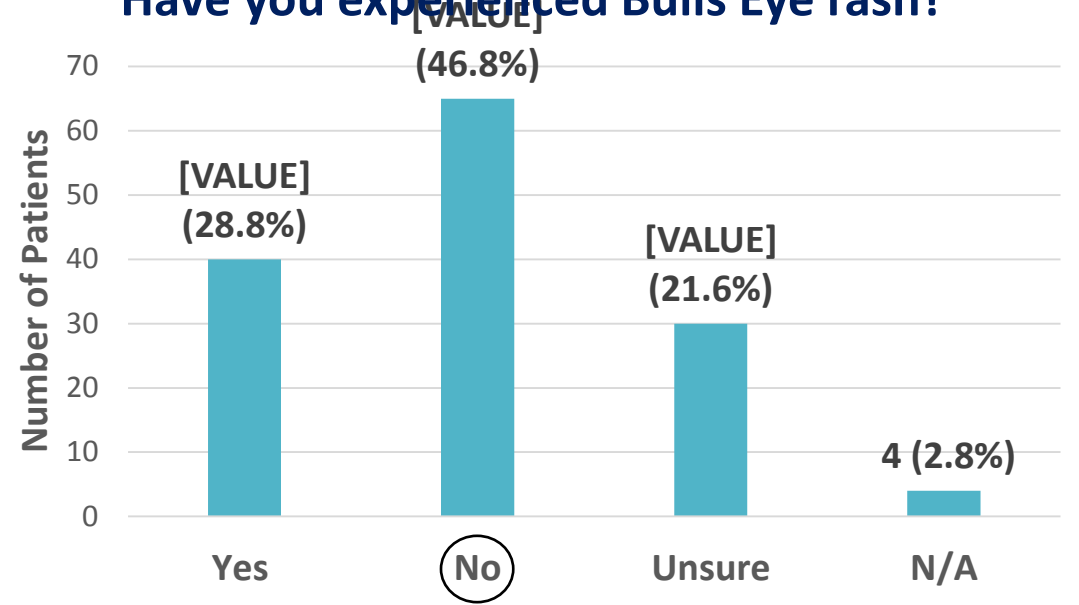


Co-infections include Babesia, Bartonella, Ehrlichia and

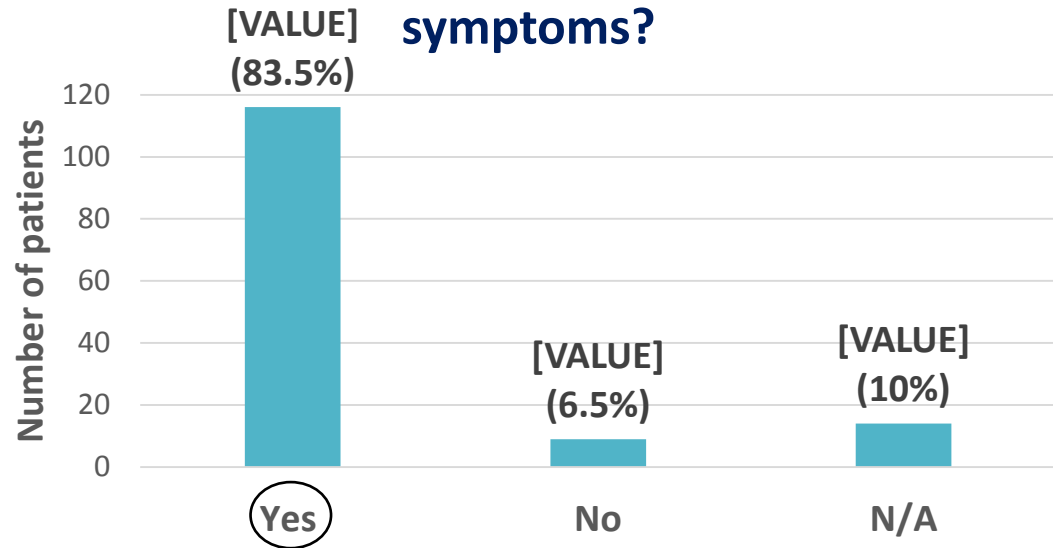
Do you recall getting a tick bite?



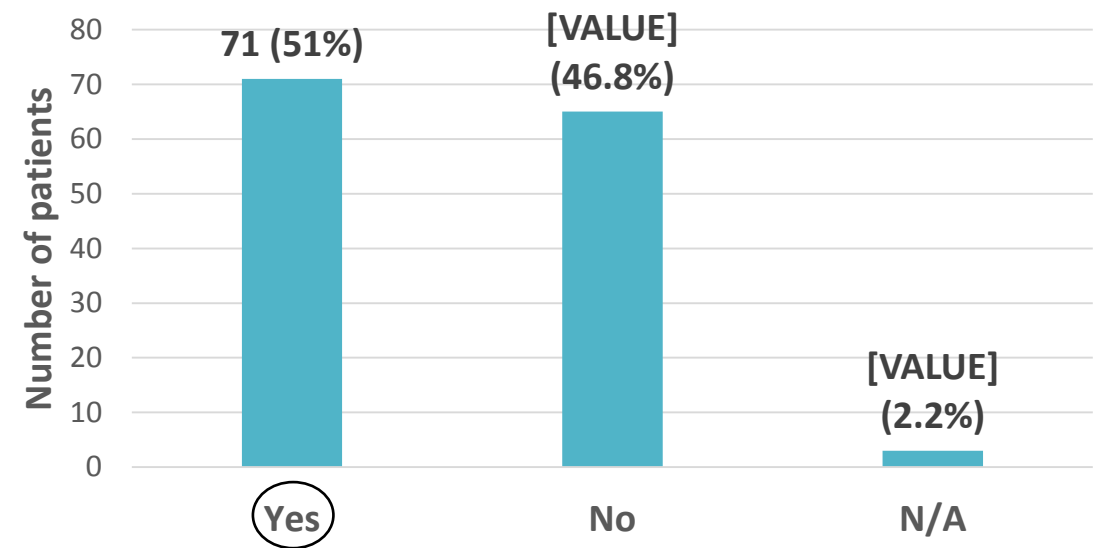
Have you experienced Bulls Eye rash?



Did you visit your GP with lyme-like symptoms?

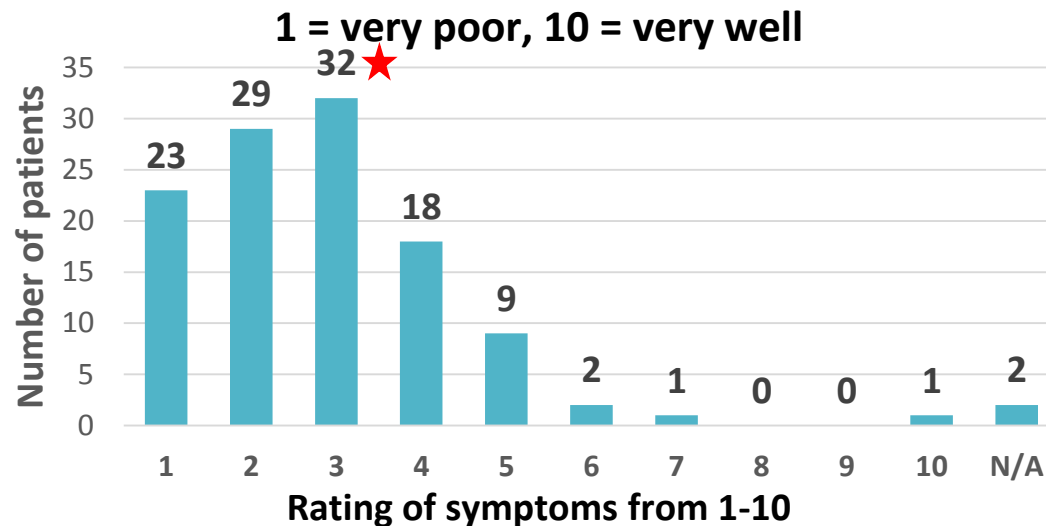


Did you receive antibiotic treatment?

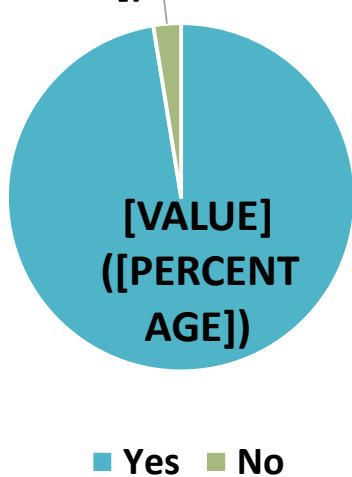


Out of 139 antibody positive patients, 117 returned to clinic.

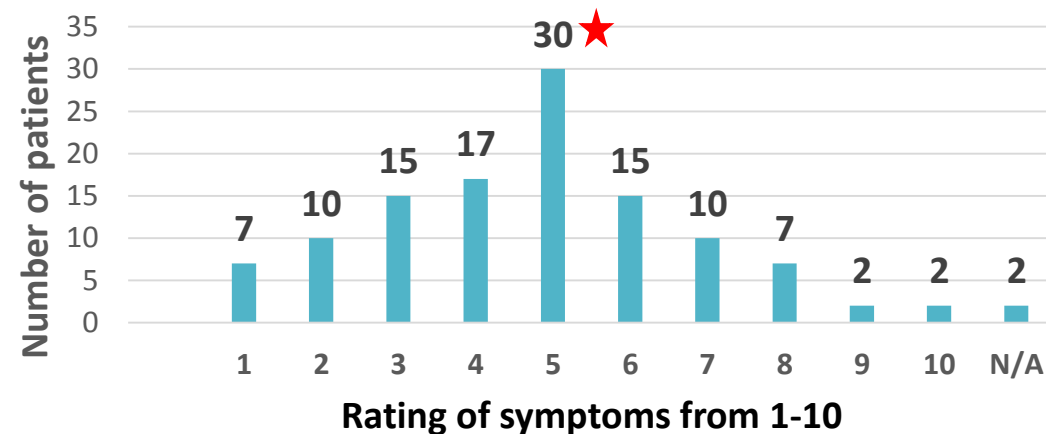
T0: In the months prior to your diagnosis how would you rate how you were feeling about your health?



T1: Do you still experience symptoms of Lyme-like illness?

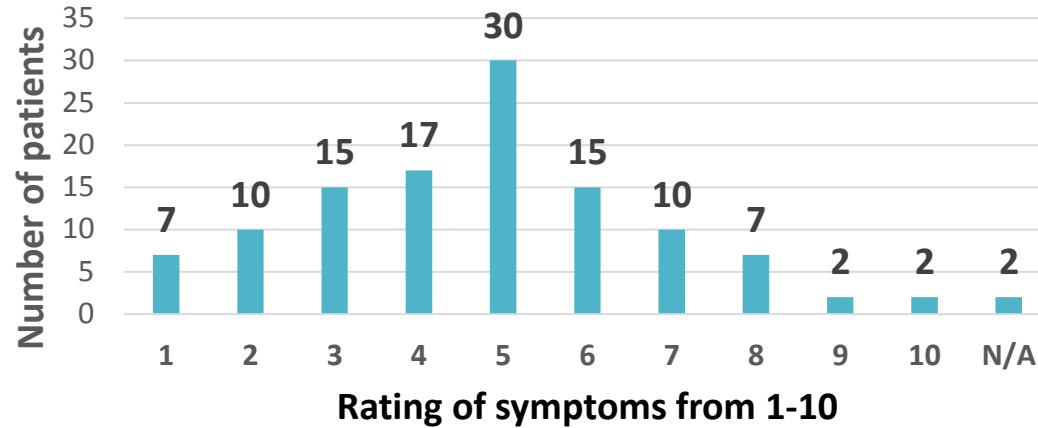


T1: How are you feeling today regarding your Lyme-like symptoms? 1 = very poor, 10 = very well

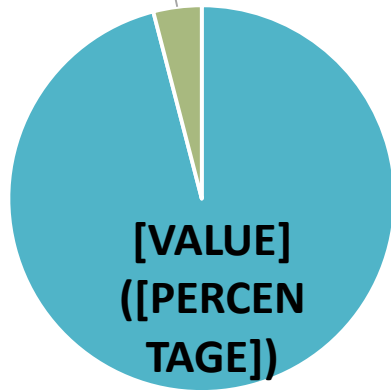


99 patients returned for follow-up visit at T2.

T1: How are you feeling today regarding your Lyme-like symptoms? 1 = very poor, 10 = very well

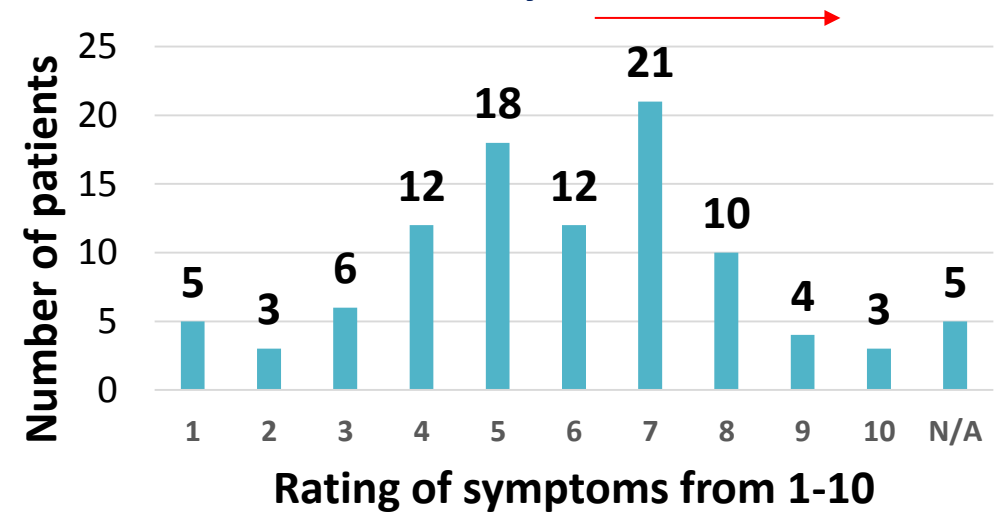


T2: Do you still experience symptoms of Lyme-like illness?



■ Yes ■ No

T2: How are you feeling today regarding your Lyme-Like symptoms? 1 = very poor, 10 = very well



Results

The three **most common symptoms** were **pain, fatigue** and **neurological symptoms** such as tingling in the limbs and memory defects.

T1	T2	Overall Decrease
<ul style="list-style-type: none">• Pain – 69 patients• Fatigue – 56 patients• Neurological – 48 patients	<ul style="list-style-type: none">• Pain – 40 patients• Fatigue – 46 patients• Neurological – 30 patients	<ul style="list-style-type: none">• 42%• 17.9%• 37.5%

Fatigue is a persisting symptom and for further exploration of this topic, please view a poster on fatigue in the poster room.

Summary of results

- Out of 301 individuals tested for TBIs, **139 individuals (46.18%) tested antibody-positive.**
- **Borrelia was the most common mono-infection** experienced by 59%. 29.5% were infected with borrelia and a co-infection and 5.75% were infected solely with rickettsia.
- **52.5% recall not getting tick bite**, 83.5% went to their GP with their symptoms and only 51% received antibiotics.
- With antibiotic treatment, **patients' symptoms improved** but they still experienced symptoms.

Conclusion

Borrelia was the most predominant TBI in this cohort, with the majority of antibody-positive cases being a mono infection.

A third of the patients had borrelia and co-infections such as Babesia, Bartonella, Ehrlichia, and Rickettsia which can **increase the severity of the illness and cause treatment failure**.

A small number of patients that tested antibody-positive for **Rickettsia alone**. This is a less common infection which could lead to misdiagnosis. **This is important as it is increasing in Europe, and it could be established in Ireland**.

Patients' symptoms **improved following antibiotic treatment**, but their symptoms **didn't completely resolve**, which is an area that needs future research.

We have some clues, **please look at our posters** on markers of chronic infections, **CD57+ and weakly antibody-positive patients** which points in the direction of the immunosuppressive nature of TBIs.

Thank You!!