



A greater severity of fatigue is demonstrated in weakly antibody-positive patients in a tick-borne infection (TBI) cohort



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BACKGROUND

Tick-borne infections can manifest with a spectrum of symptoms ranging from musculoskeletal issues, such as joint pain, cognitive impairments, including memory deficits, and psychological disorders, such as anxiety. Fatigue is a commonly reported symptom of TBI's, and it can be persistent and debilitating which can lead to premature disability.

Objectives

The aim of the study was to determine the incidence and severity of fatigue in patients with confirmed TBIs.

METHODS

This retrospective study examined a cohort of 301 patients that presented to an infectious disease clinic with 'Lyme-like' illness. A subgroup was created of patients with enzyme immunoassay confirmed TBIs and this was categorised based on infection type.

Table 1. Types of infections that were tested.

Types of Infections
• Borrelia species- IgG, IgM, Round body IgG, Round body IgM
• Babesia – IgG and IgM
• Bartonella – IgG and IgM
• Ehrlichia – IgG and IgM
• Rickettsia – IgG and IgM

The incidence and severity of unexplained fatigue in the past 6 months was analysed. The incidence of fatigue was assessed through a self-reported questionnaire including a severity assessment with a 10-point linear scale.

No fatigue 1 2 3 4 5 6 7 8 9 10 Severe fatigue

Fatigue is multifactorial in nature. To help rule out other organic causes of the patient's fatigue, their haemoglobin, thyroid function, and C-reactive protein (CRP) were also analysed.

CONCLUSION

This research confirmed that fatigue is a common and persistent symptom for patients in our cohort. A number of weakly antibody-positive results were observed. The incidence and severity of fatigue were compared between the antibody-positive and weakly antibody-positive patients. The antibody-positive patients had a higher incidence of fatigue; however, the weakly antibody-positive patients reported a greater severity of fatigue. While fatigue was assessed using simple and subjective methods, the greater severity reported by weakly antibody-positive patients may be due to immune dysfunctions and highlights that this group of patients should not be discarded. Other organic causes of fatigue such as anemia or thyroid dysfunction were also ruled out as haemoglobin, thyroid levels, and CRP were all within normal range. In clinical practice, when other organic causes are ruled out, TBIs should be considered and tested for.

RESULTS

Out of 301 patients, 139 tested positive for one or more TBIs, Borrelia (123), Babesia (23), Bartonella (24), Ehrlichia (24), and Rickettsia (37).

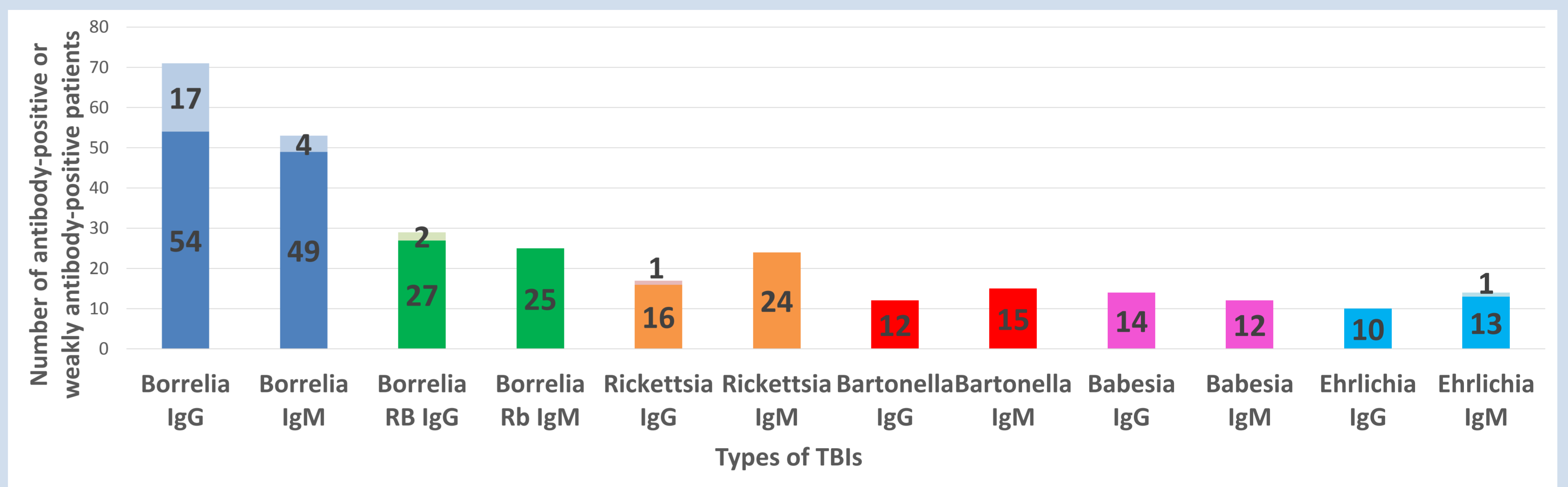


Figure 1. Number of patients that are antibody-positive (bottom) or weakly antibody-positive (top) for TBIs.

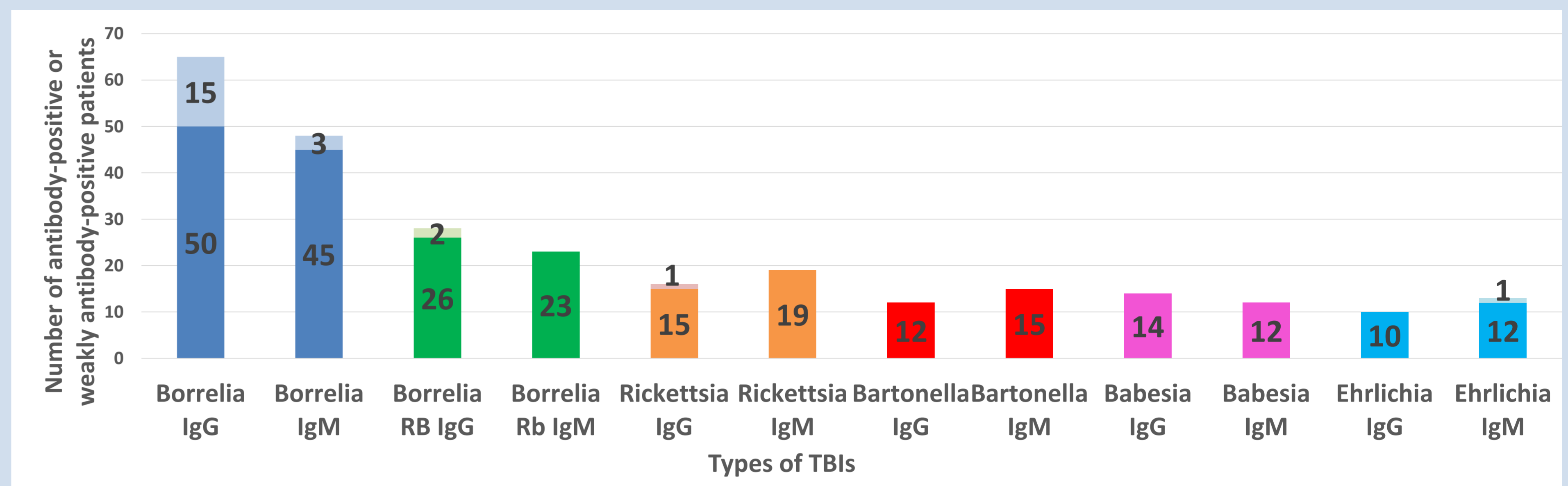


Figure 2. The number of patients that are antibody-positive (bottom) or weakly antibody-positive (top) for TBIs that experience fatigue.

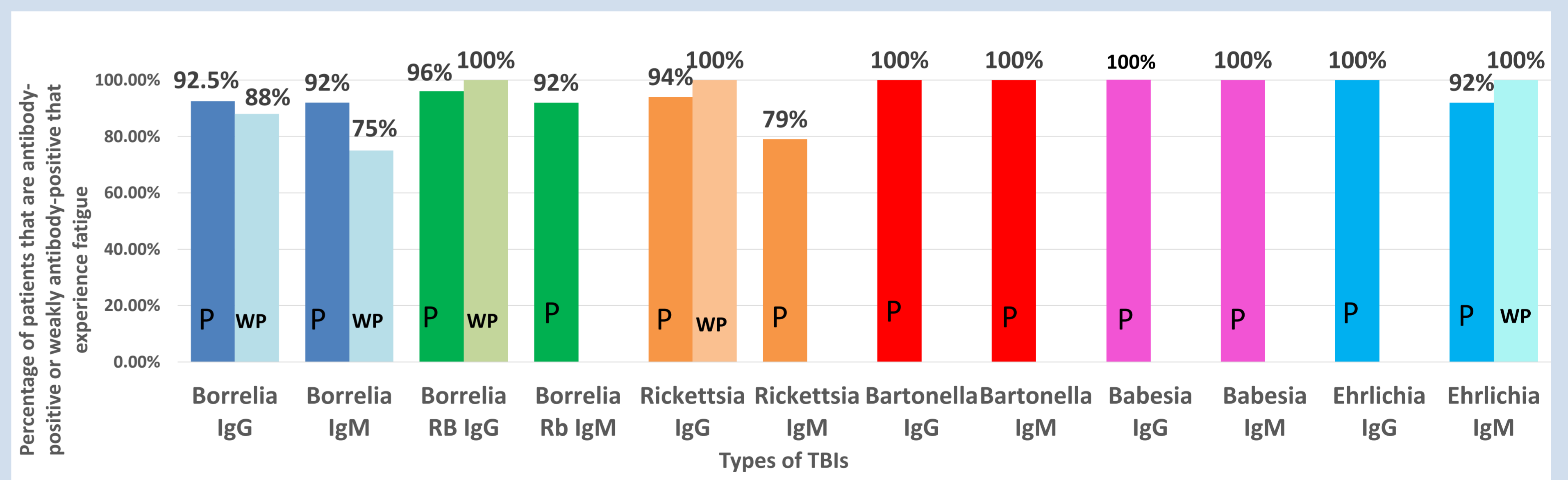


Figure 3. Percentage of patients that are antibody-positive (P) or weakly antibody-positive (WP) for TBIs that experience fatigue.

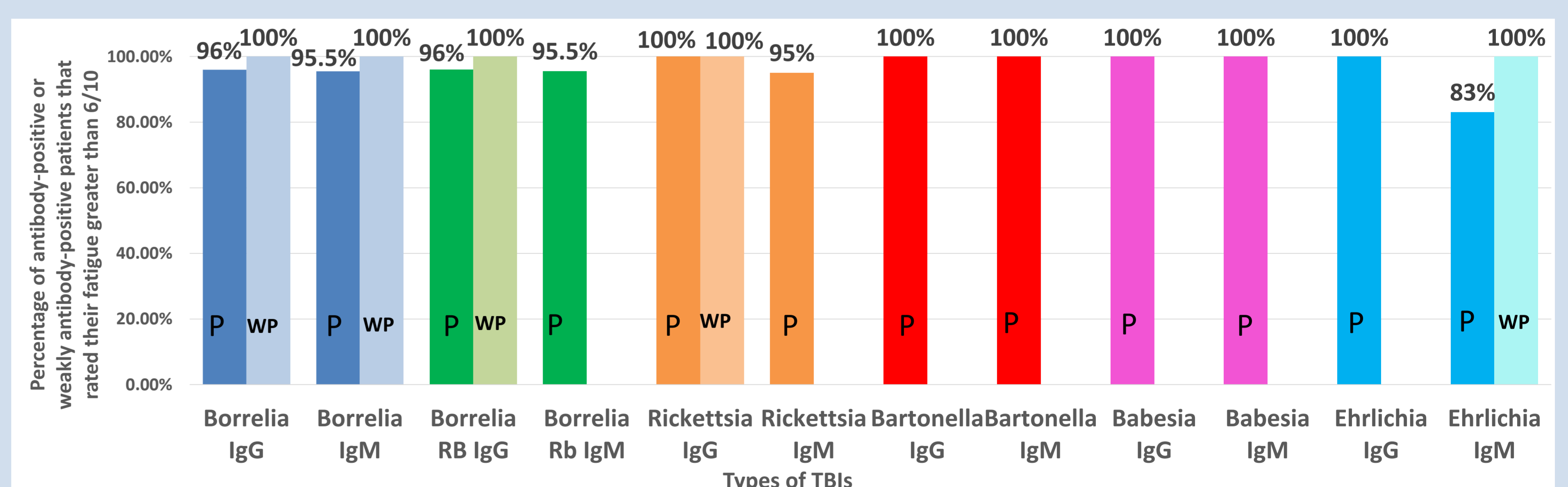


Figure 4. Percentage of patients that are antibody-positive (P) or weakly antibody-positive (WP) for TBIs that rated their fatigue greater than 6/10.

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