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**Molecular biology, including diagnostics: Molecular biology – others**

**Oligosymptomatic infection with *Babesia microti* in humans from north-eastern Poland**

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**Objectives**

Babesiosis is an infectious disease caused by protozoa of the genus *Babesia*, which are transmitted to mammals through tick bite. Human may be infected by tick bite, by blood transfusion or may be inherited through placenta. The main etiologic agents of human babesiosis are *B. microti* in the United States and *B. divergens* in Europe. The aim of the study was to analyze clinical picture and additional tests results in patients infected with *Babesia* spp. in the north – eastern Poland after tick bite.

**Methods**

Seven patients (3 women, 4 men; mean age: 63.2 years old), were included to the study. They were hospitalized because of various symptoms after tick bite. All patients had routine laboratory tests performed. In cases of suspected meningitis lumbar puncture was performed. All patients had serology for *Babesia* spp., *Borrelia* spp. and TBEV infection, PCR for *Borrelia* spp., *Anaplasma phagocytophilum* and *Babesia* spp. and blood smears to search for *Babesia* spp. and *A. phagocytophilum* circulating stages performed twice: at moment of admission and 1-4 years after recovery. All positive cases for babesiosis had sequence analysis performed.

**Results**

Six out of seven patients were infected with *Babesia microti*, what was confirmed by sequence analysis. In one case analysis of sequence was not succeeded, but serological tests results were the highest from the whole group. No severe course of *Babesia microti* infection was seen, no patient required specific anti-*Babesia* treatment. Three patients were inhabitants of country. In three cases infection was work related. Six patients remembered tick bite, 2 reported erythema migrans. Five patients suffered from fever, three from muscle pain, four from joint pain or headache, two from vertigo, three from nausea, two from vomits. In physical examination one patient had hepatomegaly. One patient was co-infected with TBEV and one with *A. phagocytophilum*. One more patient had positive anti -TBE serology in IgG class, but she was vaccinated. In laboratory tests increase in CRP concentration was observed. In two patients leukopenia and thrombocytopenia and in one anemia were observed. In blood smear we observed no piroplasm forms of *Babesia* spp. in erythrocytes. Four out of seven patients had serological response against *Babesia* spp. Self-elimination of *Babesia* spp was observed in all cases, as in the second PCR and sequence analysis no genetic material was found.

**Conclusions**

1. Oligosymptomatic infection with *Babesia microti* in humans in immunocompetent patients was confirmed.
2. Babesiosis must be considered in differential diagnosis of patients after the tick bite.
3. In patients with low parasitemia PCR and serology seem to be more sensitive method than blood smear.
4. Self-elimination of *Babesia* spp. is possible, especially in cases with low parasitemia.