

***Borrelia burgdorferi* Survival in Human Blood Samples**

GUY BARANTON AND ISABELLE SAINT-GIRONS

*Leptospirosis Laboratory
Institut Pasteur
75724 Cedex 15, Paris, France*

INTRODUCTION

Lyme borreliosis may be considered as a blood-borne infection because it is generally transmitted by tick bites.¹ Dissemination in the organism of its etiological agent, *Borrelia burgdorferi*, may occur at various stages of evolution,² sometimes at a late stage. The manner of dissemination remains uncertain, but the large spectrum of infected organs (e.g., mainly the presence of *B. burgdorferi* in the endocardium,³ as well as possible materno-fetal transmission,⁴ suggest that blood plays a major role. However, blood isolations of *B. burgdorferi* are quite rare.⁵

Having observed that a strain could remain alive several months in BSK II medium kept at +4°C and that the strains we isolated from cerebrospinal fluid of patients⁶ had survived despite several days' transportation, we attempted to determine whether a killing effect of the blood is obvious and therefore whether *B. burgdorferi* transmission by transfusion is in practice impossible.

MATERIAL AND METHODS

Twenty-five blood samples from 10 normal donors were collected on citrate phosphate dextrose preservative (CPD) as is usual in blood banks. As soon as the flasks were filled they were inoculated with *B. burgdorferi* and cooled at +4°C. The B31 *B. burgdorferi* strain was grown 7 days in BSK II medium, washed twice, and suspended at 10⁸/ml in PBS, pH 7.6. 250 µl of the suspension was added to each flask (10⁶ *B. burgdorferi* per ml in final suspension). The rubber-tapped flasks maintained at +4°C were checked weekly by sampling an aliquot from each one. Forty µl from this aliquot were inoculated in 2 ml of BSK II medium and examined within 10 days incubation at +30°C for spirochetes under dark-field illumination.

RESULTS

All the cultures remained positive from the first day until the twenty-fifth day, which was the end of the experiment for nine flasks. The tenth was tested again until the sixtieth day and was still positive.