

Prevalence of Antibody to *Trypanosoma cruzi* in women Delivering Infants at Parkland Health & Hospital System, Dallas, Texas, USA

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ABSTRACT

Umbilical cord blood was collected from Hispanic surnamed women delivering infants at Parkland Health and Hospital System, the public hospital serving Dallas County, Texas, and affiliated with UT Southwestern. When possible the specimens were collected from consecutive deliveries. Serum was tested for antibodies to *Trypanosoma cruzi* by commercial systems. Two hundred delivering women were tested as described. Of those tested, 4 were found to be positive for *T. cruzi* antibody (2%). This confirms a risk for transplacental transmission of *T. cruzi* in such a population residing outside the traditional endemic zone.

Key Words: Trypanosoma cruzi, Chagas disease, maternal transmission, Dallas, Texas

1. INTRODUCTION

Chagas Disease due to infection by *Trypanosoma cruzi* is endemic in much of Latin America. Recent immigration patterns include translocation of persons from the endemic zones into various parts of North America and other endemic countries. [1,2,3,6,7,8,13]. In Dallas, Texas the population is currently approximately 30% Hispanic, many of whom are relatively recent immigrants from Mexico, Central America and South America. Various studies have confirmed that many such immigrants are seropositive for *Trypanosoma cruzi* [1,2,3,11]. The patient population of Parkland Health and Hospital System is over 50% Hispanic. Parkland Health and Hospital System (Parkland) is a large county facility affiliated with the University of Texas Southwestern Medical Center at Dallas. Annually there are 12,000 to 16,000 obstetrical deliveries at Parkland, the majority of which are by Hispanic surnamed women. We wished to ascertain the degree to which the women delivering infants in that institution could potentially transmit the infection via the transplacental route

2. MATERIAL AND METHODS

Umbilical cord blood was obtained at the time of delivery of 200 Hispanic surnamed women at

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Parkland. As nearly as possible (determined by availability of research staff) the collections were from consecutive deliveries. All specimens were obtained within a period of two weeks. Specimens were immediately de-identified, and could not be linked to any specific individual subject. The blood specimens were centrifuged and the serum separated from the cellular elements on the day of collection. Sera were then refrigerated (5° C) until antibody studies were performed (done within two weeks of collection). All sera were then subjected to assay for antibody to *T. cruzi* using the Hemagen Chagas Kit® EIA system as directed by the manufacturer. In addition, all sera giving a positive reaction to that test were retested using the Wiener Chagatest – ELISA – Recombinante v 3.0, and a random sample of 30 sera giving a negative reaction with the Hemagen Chagas Kit were retested with the Wiener Chagatest, as directed by the manufacturer. Both the Hemagen and Wiener tests were challenged with positive and negative control sera, supplied by the manufacturers.

3. RESULTS AND DISCUSSIONS

Of the 200 specimens of cord blood tested, 4 reacted positively using the Hemagen Chagas Kit. Each of those specimens also tested positively with the Wiener Chagatest. Similarly, each of the 30 specimens giving negative reactions with the Hemagen Chagas Kit that were also tested with the Wiener Chagatest gave negative reactions with that test. Therefore, of the 200 women tested, 2% gave reactions that indicated previous infection with *Trypanosoma cruzi*, and thus potentially could have transmitted the infection to their infants. It was beyond the scope of this project to follow and retest the infants whose cord bloods were seropositive. Given the large number of Hispanic surnamed women delivering babies at Parkland, a significant number of the offspring are potentially infected, if these data can be applied to the general population of similar women.

Chagas disease, the condition caused by infection with *Trypanosoma cruzi*, is acquired via several routes: by transmission from infected triatomine bugs, by transfusion of blood products from infected donors, by the transplacental route, by transplantation of solid organs from infected donors, and by oral transmission via ingestion of products contaminated with infected triatomine bugs, or parts thereof [2,3,9,10,11,15,16]. Previous studies have documented that there are seropositive blood donors residing in North America, that a few cases of Chagas disease have been transmitted via transplanted organs, and that seropositive women have delivered infants in the United States [4,5,9,10,11,12,14,15,16]. Our data extend the latter group to include women residing in Dallas, Texas.

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ETHICAL APPROVAL

The Institutional Review Board (IRB) of the University of Texas Southwestern Medical Center approved this study. A waiver of informed consent of the subjects included in the study was granted by the IRB for purposes of this epidemiologic study.

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