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EFFECTS OF VARIOUS METHODS OF INACTIVATION OF HEMORRHAGIC FEVER VIRUSES ON CLINICAL LABORATORY PARAMETERS MEASURED IN HUMAN BLOOD

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Viral hemorrhagic fever (VHF) is caused by infection with one of over 25 different lipid-enveloped viruses, including Ebola, Marburg, and Lassa. These viruses pose a threat not only to infected persons, but also to healthcare workers, laboratorians, and researchers in potential contact with blood and other bodily fluids. Although specialized Biosafety Level 4 laboratories have been developed for researchers to safely manipulate these viruses and diagnose VHF, few standard clinical laboratories have these means of protection, potentially putting workers in these laboratories at risk. However, various means of inactivation of lipid-enveloped viruses have been reported that may help protect workers in clinical laboratories, including solvent/detergent combinations (Triton X-100/TnBP/Tween 80), heat, gamma-irradiation, formalin, psoralens, and UV light. However, since the point of testing in clinical laboratories is to measure parameters important in guiding clinical management, it is important to understand the effect of the various inactivation techniques on each parameter in question. We performed a study to evaluate the effects of proven or assumed virus inactivation techniques on clinical laboratory parameters commonly measured in the blood and useful in the treatment of patients with VHF, including complete blood cell counts, electrolytes, and chemistries, including coagulation parameters. Each parameter is measured before and after the inactivation step on the Piccolo Xpress blood analyzer (Abaxis Co.), a point-of-care instrument, and the percent change noted. Triton X-100/TnBP/Tween 80 has minimal effect on tested clinical parameters. In contrast, there were significant changes after heat and formalin inactivation. Results from gamma irradiation, UV light, and psoralen/UV light are pending but will be discussed, as well as proposed guidelines for safe handling and testing of blood from patients with VHF in the clinical laboratory.

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CLINICAL STUDY OF SAFETY AND APPARENT EFFICACY OF ANTIVIPMYN® AFRICA FOR THE TREATMENT OF SNAKEBITE IN KINDIA, A FOREST REGION OF GUINEA

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An open phase IV pragmatic clinical study was conducted to measure the safety and assess the apparent efficacy under field conditions of Antivipmyn® Africa (AA), an equine lyophilized $F(ab')_2$-based antivenom. The study was conducted at the Insitut Pasteur de Guinée (IPG) from August 2009 until February 2010. All people reporting snakebite, presenting clinical symptoms of envenomation (edema, necrosis or neurological signs) and who formally accepted to participate in the study were included. Antivenom was administered by slow direct intravenous push. In 6 months 228 snakebite victims arrived for consultation at the IPG. The mean delay from bite to consultation was greater than 24 hours. Of these, 150 (65.8%) were included, mostly young men; of these, 124 (82.7%) exhibited signs of viper envenomation (inflammation and/or bleeding and/or necrosis) and 26 (17.3%) exhibited manifest neurological signs compatible with Elapid envenomation (local-regional paresthesias, cranial nerve paralyses, dyspnea, severe problems of awareness.) All patients received treatment, a mean of 1.41 vials per patient (± 0.99), and more for those with signs of neurotoxicity ($P < 10^{-5}$). Four patients (2.7%), apparently bitten by Viperidae, had a necrosis of variable extension which healed without sequels. Four others, in all likelihood bitten by Elapidae, died with hours (range: 1-7) of arrival to the IPG in spite of antivenom administration. For 2 of them, the delay between bite and arrival might explain in part the absence of a therapeutic response; for the other 2, the evolution of neurotoxicity continued in spite of treatment. Ongoing analysis of blood samples collected during the trial should permit an identification of the offending species and inform on the evolution of blood venom levels. Ten patients exhibited mild adverse events (pruritus or eruption), 5 of which are likely to be attributable to treatment.

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FALSE-POSITIVE RAPID PLASMA REAGIN TESTING IN PATIENTS WITH ACUTE *PLASMODIUM VIVAX* MALARIA

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Prior to the introduction of penicillin, a common therapy for patients with neurosyphilis was the induction of fever with deliberate *Plasmodium* infection. Investigators at that time described positive serologic tests for syphilis in malaria-infected control patients without evidence of syphilis infection. Currently, the diagnosis of syphilis consists of screening with non-treponemal tests such as the rapid plasma reagin (RPR), followed by confirmation with a specific test such as the *Treponema pallidum* hemagglutination assay (TPHA). In this study, we compare the rate of false-positive RPR tests in patients with vivax malaria compared with patients with other febrile illnesses in Peru. Patients ≥ 5 years of age were offered enrollment into an ongoing febrile surveillance protocol in Peru if they had a temperature of ≥ 38.0 degrees C for ≤ 7 days without distinct localizing symptoms, such as a purulent cough or meningismus. Malaria was diagnosed by microscopy and PCR. RPR and TPHA were performed on all acute serum specimens. Groups were compared by two-tailed Fisher's exact test. 73 patients with vivax malaria and 76 control patients with other febrile illnesses were identified. 54.9% of patients with malaria were male with a mean age of 31.5 years, compared with 40.8% and 28.9 years in patients without malaria. In patients with malaria, positive RPRs were detected in 8/73 (11.0%), of whom 2/8 (25%) had positive TPHA tests. RPR titers ranged from 1:1 to 1:16 among the false-positive tests. In patients without malaria, a positive RPR and TPHA were detected in 1/76 (1.3%) with no false-positives. Overall, false-positive RPRs were detected in 6/73 patients with malaria (8.2%) versus 0/76 patients with non-malarious fever (0%) (p=0.0124). The positive predictive value of the RPR in patients with malaria was 25% (95%CI: 4.4-64%). In conclusion, false-positive RPRs are common in patients with vivax malaria. The RPR is a widely-used screening test for syphilis in pregnant women, persons with HIV, and other groups at risk for malaria. As such, the RPR should be interpreted with caution in malarious settings.

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RISK FACTORS FOR METABOLIC SYNDROME IN CHILDREN AND ADOLESCENTS FROM URBAN AND RURAL AREAS OF NORTHEASTERN VENEZUELA

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Obesity represents one of the major problems associated to public health for its association to increased risk to type 2 diabetes, cardiovascular disease and stroke. Recent studies have showed that obesity is a world