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Laboratory investigations in cases of Sudden and Unexpected Death in Infancy (SUDI) in the Tygerberg Medico-legal Mortuary, Cape Town, South Africa

Corena De Beer

Stellenbosch University, South Africa

Sudden and Unexpected Death in Infancy (SUDI) is an under-researched field in South Africa. Identifying causes of death remains challenging despite full medico-legal investigations inclusive of autopsy, scene visit and ancillary studies. Viral and bacterial infections have been implicated repeatedly as risk factors for SUDI, but no standard laboratory investigation protocol exists in South Africa. SUDI cases from the Tygerberg Medico-legal Mortuary are being collected since 2014 and investigated for respiratory viruses and immunological markers of infection. Swab and tissue samples from the lungs and trachea are screened for histology and viral infections and blood from the heart is used to measure markers of infection in serum. More than 250 cases have been collected to date and demographic information confirmed several risk factors that correspond with the literature. Although multiplex PCR assays produce higher positive yields for respiratory viruses than routine shell vial culture, the incidence is very low. However, increased immunological markers, such as C-reactive protein, can suggest systemic infection or inflammation prior to death. It is not possible to measure viral loads on post-mortem samples, and virology results need to correlate with moderate to severe interstitial pneumonitis on lung histology to suggest a viral cause of death. Immunological markers are now being investigated to assess the presence of non-specific infection or inflammation prior to or at the time of death, due to the high incidence of negative virology results. Preliminary findings reconfirmed the need for different approaches in order to determine the cause of death in SUDI cases.

Biography

Corena De Beer has completed her PhD in 2004 and holds the position of Senior Medical Scientist and Senior Lecturer in the Division of Medical Virology of Stellenbosch University, Cape Town, South Africa. She started research on SUDI cases in collaboration with Forensic Pathology in 2009. She has published 32 papers, of which 3 were on SUDI. She has successfully supervised 18 Post-graduate students and is currently supervising 2 PhD, 2 MSc and 1 Honours BSc students. She serves on the Editorial Board of Annals of Forensic Research and Analysis and on several national review boards.

cdeb@sun.ac.za

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