

Annual Congress on

Cellular Therapies, Cancer, Stem Cells and Bio Medical Engineering &

5th International Conference on **Pain Medicine and Pain Management**

October 17-18, 2018 | New York, USA

***In-vitro* Studies of the prevalence of malaria parasite in Imo State Nigeria in 2016**

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A study to determine the prevalence of Malaria parasite in Imo State Nigeria namely; Okigwe, Orlu, and Owerri was carried out between Januarys to December 2016. Blood samples were analyzed using the Molecular approach; Microscopic and RDT test kit methods. Data on socio-demographic characteristics were collected using an interview-based questionnaire. The overall prevalence of malaria parasite was 26.67%. The highest prevalence of infection was recorded in Okigwe zone (28.87%) and the least was recorded in Owerri (25.15%) but there was no significant difference ($P>0.05$) in the three zones sampled. There was a significant difference in the infection in the age groups ($P<0.05$) with the highest infection of 6.95% in 11-21 years age group and the least infection of 4.00% in those of 44-55years; but the occurrence was not dependent on sex. A non-significant higher infection was observed in females (16.47%) than males (10.19%) ($P>0.05$). There was a statistical difference ($P<0.05$) in the Plasmodium species isolated which include *P. falciparum* 240(90.91%) and *P. ovale* 24 (9.09%). Therefore, improving the diagnostic system (Microscopy and Rapid diagnostic tests, health workers training, infrastructure for diagnostics, quality assurance for diagnostic tools, etc.) is critical for the accurate diagnosis of malaria. Microscopy remains the gold standard owing to its high sensitivity, specificity quantitation of parasite density when performed by a competent microscopist. Molecular approaches based on PCR techniques may be an alternative tool particularly favorable in regions with declining prevalence like Imo State, Nigeria.

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