Global Health Day

Developing Telepathology Program in Promoting Cervical Cancer Research and Training in Nigeria

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Introduction: To promote cancer research and awareness of cervical cancer in Nigeria, a multi-institution collaborative study of epigenetic analysis of cervical cancer, funded by NCI, needs an expert team of clinicians, epidemiologists, pathologists, and basic researchers. This project focuses on identifying epigenetic markers specific to HIV-associated cervical dysplasia and invasive cervical cancer by comparing uninfected cervical cancer women and HIV-infected cervical cancer-free women in one of the most populous nations in Africa. This program screens and collects hundreds of cervical cancers from multiple geographic regions with variable HIV and HPV prevalence. A cervical cancer study of this magnitude requires accurate diagnosis and assessment of the different types of cervical cancer. While pathologists in Nigerian Universities are at the frontline collecting, reviewing and diagnosing these specimens, communication of current diagnostic guidelines and tumor classification is done through a joint histology review process with Northwestern University (NU) gynecologic pathologists for consensus.

Designs: The coronavirus pandemic, for most part of this year, has brought all global activities to a standstill, including our ongoing study. As a consequence of travel restrictions, our team was unable to receive and access the slides of new cases from the two Nigerian university teaching hospitals in Jos and Lagos (JUTH, LUTH). To overcome this obstacle, we proposed the application of telepathology, a web-based network in which all traditional histology evaluation of cancer under microscope can be replaced by digital slide review. The main purpose of this application is to establish a basic digital image scanning system at two Nigerian universities to aid histological analysis, pathology consultations, scientific publications and medical education.

Results: A pathology team was established including pathologists from two Nigerian institutions and NWU. We prepared and applied for a grant for telepathology and it was funded by GHI. The funded grant was used to purchase scanners, and digital image storage devices for JUTH and LUTH. A web-based digital image storage system was established which allows for sharing and synchronizing digital images remotely from three different institutions. Currently, approximately 200 of the 400 proposed cases of cervical cancer for this study have been

recruited for the U54 study from both JUTH and LUTH. About 10% of slides have been previously received and digitized at NU Pathology Core Facility (PCF). All these images can be accessed by the Nigerian pathologists through NDP2 software. We demonstrated that telepathology has broad applications in medical diagnosis, medical research and education. Currently, we are working on establishing consensus guidelines for accurate sampling and evaluation of tumor samples as well as developing a teaching platform for educational purposes with Nigerian trainees.

Conclusion: Telepathology allows a pathologist to control video images for remote analysis and diagnosis. This also provides an exceptional resource-efficient tool for research, education and training of local students and medical professional staff. Through the telepathology program, we established a basic platform to reach the above objectives. Our future plan is to optimize the current system in promoting the U54 study and for medical education.