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## Reducing inter and intra observer differences using biomarkers in histological diagnosis of invasive cervical cancers and cervical intraepithelial neoplasia in Ghanaian women

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**Background:** Increased cellular proliferation and cell cycle abnormalities have been associated with development of cervical cancer and cervical intraepithelial neoplasia in women. Criteria for grading of these lesions by pathologist based on digression in growth and degree of invasiveness among other abnormalities have been affected by inter and intra-observer differences resulting in poor reproducibility. Diagnosis disagreement in histopathology between colleague residents or between residents and pathology consultants can result in over/unnecessary treatment that will incur more to a poor woman or under treatment that will put the life of a woman with cervical lesion at risk of metastatic disease with low survival rate. Ki-67, a proliferative marker is useful in grading of cervical cancer and cervical intraepithelial neoplasia by giving uniform and reliable outcome independent of inter and intra-observer differences.

**Aim:** To demonstrate the level of expression of Ki-67 antigen in invasive cervical cancer and cervical intraepithelial neoplasia in Ghanaian women by reducing observer differences.

**Methodology:** Using indirect immunohistochemical method, 116 diagnostic cervical samples with varying grades of cervical intraepithelial neoplasia and invasive cancer selected retrospectively and randomly were analyzed for level of expression of Ki-67. Kappa analysis was used to assess the level of agreement between resident colleagues as well as between residents and consultants in histological diagnosis and immunohistochemistry.

**Results:** The levels of Ki-67 expression in malignant lesions were higher than in premalignant lesions which were also higher than in normal cervix. The inter observer differences between consultants, pathologist and residents was higher than intra observer differences. The levels of Ki-67 could distinguish post-menopausal atrophy from dysplasia.

**Conclusion:** Due to semi quantitation of Ki-67 protein there exist some level of inter observer difference using Ki-67 grading of tumours but as compared to that which exist for histomorphological grading of tumours, the former is better. Inter observer difference using Ki-67 grading as compared to histomorphological grading of tumours were better using kappa analysis. Ki-67 score can distinguish between reactive lesions and dysplasia. Ki-67 analysis therefore should serve compliment to histological grading of tumour for the objective, reproducible, and reliable classification of dysplastic changes in cervical epithelium especially for proper patient management to increase chance of survival or reduce unnecessary treatment. However, the findings and conclusions of this study are limited by the small sample size of participants, and a much larger population-based study would be required to validate our findings.

### Biography

Ama Afrah is Master of Philosophy in pathology from University of Ghana, Legon. She is certified from American society for Colposcopy and cervical pathology. Presently Ama afrah is working in Korle – Bu Teaching Hospital and Cray Med Lab Services.

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