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With the South African Society of Gynaecologic Oncology, Radiation Therapists, Oncology Nursing Society, Oncology Social Work Society, SA Medical Physics Society and South African Society of Oncology Pharmacists

1. The role of hybrid imaging using ^{18}F-fluorodeoxyglucose PET/CT in the treatment of advanced cervical cancer

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Objective: To determine if ^{18}F-flurodeoxyglucose (^{18}F-FDG) positron emission tomography (PET) and computed tomography (CT) hybrid imaging performed before chemoradiation therapy can affect the initial staging of patients staged using conventional staging criteria; and to determine whether the ^{18}F-FDG PET/CT findings can assist in the appropriate management of these patients.

Method: In this retrospective study 20 patients (mean age 46.5 years, range 26-75 years) with cervical cancer underwent ^{18}F-FDG PET/CT scans for further staging before the initiation of chemoradiation treatment. There were 12 cases of squamous cell carcinoma, five cases of adenocarcinoma and three cases of adenosquamous carcinoma. The imaging was performed using a Siemens Biograph® PET/CT scanner. This is a hybrid camera that has a PET component and a 40-slice CT component in a single gantry. A weight-adjusted dose of ^{18}F-FDG was injected intravenously, followed by a whole-body PET scan at 90 minutes after the injection. A diagnostic CT scan was also performed for each patient. Both scans were acquired in succession. Standardised uptake value (SUVmax) was calculated; the International Federation of Gynecology and Obstetrics (FIGO) stage, the presence of local extension, sites of lymph node and distant organ metastases were recorded.

Results: The ^{18}F-FDG PET/CT scan findings resulted in upstaging in 11 of the 20 patients (55.0%). Patient management was altered from radical therapy to palliative radiotherapy in 7 of the 11 upstaged patients (63.6%).

Conclusion: ^{18}F-FDG PET/CT provided crucial information in the pretreatment staging of patients with locally advanced cervical cancer. This technology could assist in the implementation of appropriate chemo-radiation or radiation therapy after staging. A recommendation for a prospective study is warranted with greater patient numbers and clinical long-term follow-up including serial functional imaging studies to determine whether hybrid imaging using ^{18}F-FDG PET/CT can assist in the appropriate management of this condition.

2. Oncogenic HPV genotypes: population differences in the distribution pattern in the population and in cervical cancer specimens

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Objective: Human papillomavirus (HPV) type distribution is regionally different and influenced by population-related factors and immunity. We studied HPV genotypes in the population and in cervical cancer specimens to gain insight in the distribution pattern and relative oncogenicity of the types in this population.

Method: Cervical samples from 1 000 women were tested for high-risk HPV DNA. In addition, oncogenic HPV types were determined for 150 cervical cancer samples using DNA and RNA analysis. The viral type distribution was determined in both groups and compared. In addition, the data were compared with a meta-analysis of African studies.

Results: The sequence of HPV genotypes of the alpha species 9 in the general population was 16, 58, 33, 35 and 52, and in cervical cancer 16, 35, 33, 52 and 31. HPV 16 and 51 (alpha species 5) were both present in 13% of the population, but caused 42% and less than 1% of the cancers in the current study respectively. HPV 35 was present in 8% of women and caused 16% of cervical cancers. HPV 45 and 18 (alpha species 7) were present in 10% and 9% of the population, while they were causative of 10% and 14% of cervical cancer cases respectively.

Conclusion: When compared to published data, HPV types 35 and 52 are overrepresented in cervical cancer and type 45 appears to gain increasing importance as an oncogene in our region. In the current study, HPV 35 appears to have carcinogenic potential similar to type 18. Type 51 was shown to have low oncogenicity and should probably be reclassified.