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Assessing anxiety and depression among adult cancer patients at the National Center for Radiotherapy and Nuclear Medicine, Accra, Ghana

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Background: Anxiety and depression are common in patients with cancer. It is suggested that 40% of cancer patients develop clinical anxiety and/or depression after diagnosis and or during treatment. Anxiety is a normal reaction to stress which helps an individual deals with a tense situation.

Aim: The aim of this study was to evaluate anxiety and depression levels among cancer patients receiving at the National Center for Radiotherapy and Nuclear Medicine, Accra Ghana, and to develop appropriate interventions to dealing with anxiety and depression.

Method: Using a quantitative cross-sectional research design, data was gathered from cancer patients at the Radiotherapy Department of Korle-Bu Teaching Hospital. The tool used to collect was General Health Questionnaire and Hospital Anxiety and Depression Scale (GHQ &HADS). The 14-item tool was used to gather information such as patient's gender, age, education, religion, tumor information. The Study received ethical clearance from the Ethical and Protocol Review Committee of SBAHS, University of Ghana.

Results: Data from 60 patients receiving radiotherapy at the Korle-Bu Teaching Hospital were evaluated. There were 47 women and 13 men. The study revealed that the participants experienced different levels of anxiety and depression. Based on the Hospital Anxiety and Depression Scale, the mean anxiety and depression scores were 12.481 and 12.397 respectively.

Conclusion: The study has identified that anxiety and depression was common and high among cancer patients receiving radiotherapy.

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Combretastatin A-4 inspired novel 2-aryl-3-arylamino-imidazo-pyridines/pyrazines as tubulin polymerization inhibitors, anti-mitotic and anticancer agents

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Based on the pharmacophoric features of the natural product combretastatin A-4 (CA-4) and its synthetic analogues that inhibit tubulin polymerization, a series of novel 2-aryl-3-arylamino-imidazo-pyridines/ pyrazines as potential anti-tubulin anticancer agents were designed. They were synthesized by a one-pot method involving preparation of isocyanides from the anilines via formylation and subsequent dehydration followed by their reactions with heterocyclic-2-amidines and aldehydes. Compounds 1, 2, 14 and 15 were found to exhibit significant tubulin polymerization inhibition and disruption of tubulin–microtubule dynamics similar to that of CA-4. They showed potent anticancer activities in kidney, breast and cervical cancer cell lines, and relatively low toxicity to normal cells, compared to CA-4. The compounds induced DNA and chromosomal damage, and apoptosis via cell cycle arrest in the G2/M phase. The molecular docking and molecular dynamics (MD) simulation studies revealed that disruption of microtubule dynamics might occur by interaction of the compounds at the colchicine binding site at the a, b-tubulin hetero-dimer interface, similar to that of CA-4. Molecular modeling analysis showed that two of the three methoxy groups at ring A of all four potent compounds (1, 2, 14, and 15) were involved in bifurcated hydrogen bonding with Cysb241, an important molecular recognition interaction to show tubulin inhibitory activity. In comparison to CA-4, the bridging NH and the imidazo-pyridine/pyrazine moieties in the title compounds provide flexibility for attaining the required dihedral relationship of two aryls and additional pharmacophoric features required for the interaction with the key residues of the colchicine binding site..

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