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Anemia in cancer patients undergoing radiotherapy and chemotherapy in National Hospital Abuja, Nigeria

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Introduction: Many cancer patients present with anemia prior to radiotherapy and chemotherapy or may experience anemia/ worsening of anemia at some point during treatment.

Aims & Objectives: The aim was to study impact of anemia in cancer patients undergoing radiotherapy and chemotherapy.

Methodology: 201 cancer patients of both sexes with histopathologically confirmed malignancies (solid cancers) were included. Patient's pre-treatment Hb was taken. Patients were distributed into radiotherapy, chemotherapy and chemoradiation. Their Hb was measured once every 2 weeks. The blood film pictures of the patients were examined. The whole process was terminated after 3 consecutive Hb reading or after week 6. Anemia was classified into: Less than 10 g/dl-severe anemia; 10-10.9 g/dl- moderate anemia; 11-12 g/dl-mild anemia; and 12 g/dl and above-no anemia.

Results & Analysis: Out of 201 cancer patients, 86.1% were female and 13.9% were male. Age range was 25-75 years, 100 patients were on chemotherapy, 63 patients on radiotherapy and 38 patients on chemoradiation. The prevalence in anemia in cancer patients undergoing radiotherapy and chemotherapy was found to be 63% as shown by blood film picture (i.e. average of 72%, 42.9% and 73.7%). At the end of therapy, 62% (100) patients on chemotherapy and 55.6% (63) patients on radiotherapy had their Hb level between 11-12 g/dl, and 39.5% (38) cancer patients on chemoradiation arm had Hb value of 10-10.9 g/dl. At P- value>0.05, there was no statistical significance on distribution of mean Hb, standard deviation was based on sex and treatment type.

Conclusion: Prevalence of anemia in the study group was found to be 63% while 37% had adequate hemoglobin (Hb) after the therapy as reflected in the blood film picture. At 95% confidence interval, chemotherapy had greatest impact on Hb level during therapy. Thus, chemotherapy: 9.60-10.62 g/dl; radiotherapy: 11.52-12.13 g/dl; and chemoradiation therapy: 10.98-11.36 g/dl was observed.

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ABC subfamily C member 10 *(ABCC10)* is a promising novel target in Hodgkin's lymphoma

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Owing to the progress in its treatment, Hodgkin's lymphoma (HL) has become a potentially curable disease. However, there is a subset of HL patients, has disease that is either refractory to treatment or relapses early; outcome for these groups is particularly poor. Moreover, patients receiving combined treatment are at higher risk for second malignancies. ABCC10, also known as multidrug-resistant protein 7 (MRP7), is the tenth member of the C subfamily of the ATP-binding cassette (ABC) superfamily. *ABCC10* mediates multidrug resistance (MDR) in cancer cells by preventing the intracellular accumulation of certain antitumor drugs. Our study unveiled for the first time the expression pattern and effect of *ABCC10* in Hodgkin's lymphoma (HL). Results of our study showed that *ABCC10* is over-expressed in most HL derived cell lines and primary HL tumor cells as compared to normal B cells. Our functional studies showed that inhibition of *ABCC10* by one of inhibitor (Tariquidar) had a significant dose-dependent increase in the sensitivity of HL cells to doxorubicin. Importantly, in our study we found that overexpression of *TXN* was considered to be a negative prognostic factor for HL patients. We showed that there is a significant positive correlation between *TXN* expression level in tumor cells and tumor stage, that in turn act as a covariant, as it predicted initial response to treatment. These results indicated that *ABCC10* plays a role in increasing toxicity of chemotherapy on HL cells, its overexpression affect clinical outcome, and it is a potential target in HL.

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