قال تعالى:

بسم الله الرحمن الرحيم

]قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ العَلِيمُ الحَكِيمُ[

صدق الله العظيم

{البقرة:32 }

Dedication

To my parents,

To my brothers and sisters,

To all whom I love and respect.

Acknowledgements

First of all I thank Allah for giving me the strength and patience to do this work. I would like to express my deepest gratitude to my supervisor Dr. Babikir Ishag for his invaluable advice, constructive criticism, continuous guidance, encouragement and patience throughout the period of this study. I wish also to express my deep gratitude to radiology and laboratory staff at Radiotherapy Isotopes Center of Khartoum "RICK" for their help and cooperation. My deep thanks to Ms. Safa Ahmed for her assistance and help me in sample collection. My special thanks owed to all staff in University of Shendi. Best regards and thanks are extended to Mr. Ahmed Ali Alamin for his cooperation and guidance.

Lastly, but not least I would like to thank all my friends specially Mr.Hussam Ali & Mr.Fathelrahman Ibrahim and colleagues for their unlimited support and strong advice throughout this study.

Abstract

This is a case control study was carried out at Radiotherapy Isotopes Center of Khartoum "RICK" during the period from November 2008 to March 2009. The main aim of this study was to assess the cytomorphologicals change in urine in patients receiving radiotherapy and to correlate these changes with the dosage of radiotherapy. Specimens of urine were collected from 120 individuals, of whom 60 patients had pelvic neoplasms receiving radiotherapy as study group, and 60 full voided urine samples were collected from healthy individuals as control group.

Voided urine specimens were collected and processed by the conventional method for urine cytology and stained by Papanicolaou staining method and examined microscopically.

Cytological atypias in form of cellular enlargement and nuclear enlargement were detected in 9 (15 %) individuals and in form of multinucleated cells in 4 (7%) of individuals in the study group. Whereas, no evidence of cytological atypias was detected among control group. These findings strongly prove the role of radiotherapy as a risk factor for developing cytological atypias and these were found to be statistically significant ($P<0.05$).

Inflammatory cells were seen in 43 (71%) of cases and 8 (13.3%) of controls, and haematouria was seen in 14 (23.3%) of cases and in 2 (3.3%) of controls. These indicate that radiotherapy is major factor for the presence of the inflammatory cells ($P<0.05$) and haematouria ($P<0.05$).

In conclusion, radiotherapy can cause cytological atypia, haematouria and can induce the presence of inflammatory cells in urine cytology. Urine cytology is a simple and convenient method in the diagnosis and assessment of pathological conditions of the urinary system. In view of these, we highly recommend the introduction of urine cytology techniques in screening and assessment of individuals who are at risk of developing bladder cancer.

خلاصة البحث

الفترة من نوفمبر 2008 الى مـارس 2009 . **لخلوية لبول المرضى الذين يخضعون للعلاج الاشعاعي.**

تم أخذ عينات البول من 120 شخصا، 60 ت الحـوض المختلفـه و يتـم علاجهـم بواسـطه الاشـعاع (عينـات الدراسة) و 60 أصحاء للعلاج بواسطه الاشعاع ( )

أكتشفت الخلايا اللانمطية في شكل تضخم الانوية والخلاية 9 (15%) من عينات الدراسة و في شـكل تعـدد الانويـة فـي 4(7%)، بينمـا لـم تسـجل وجـود الخلايـا اللانمطية. العلاج بالاشعاع

أ الدراسه وجود الخلايا الالتهابية في 43 (71%) من عينات الدراسة و 8 (13.3%) البيله الدمويه

في 14(23.3%) من عينات الدراسة و 2 (3.3%) [illegible] **.**
[illegible] **العلاج بالاشعاع** [illegible] **و البيله الدمويه** [illegible].

[illegible] **العلاج الاشعاعي** [illegible] **و البيله الدمويه** [illegible].

[illegible]

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