بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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Analysis of Health-Related Quality of Life of Patients With Clinically Localized Prostate Cancer After Treatment With Intensity Modulated Radiation Therapy (IMRT) Versus 3D Radiation Therapy

Thesis

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Master degree of Clinical Oncology & Nuclear medicine,

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2020

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List of abbreviations

3D CRT	3 Dimensional conformal radiation therapy
ADT	Androgen deprivation therapy
ASR	Age-standardized rate
CT	Computed tomography
DRE	Digital rectal examination
EBRT	External beam radiotherapy
EORTC	European Organization for Research and Treatment
EPIC	Expanded Prostate cancer Index Composite
EWB	Emotional Well-Being
FACT-P	Functional Assessment of Cancer Therapy
FFF	Freedom from failure
FWB	Functional Well-Being
G.S	Gleason score
GI	Gastrointestinal
GU	Genitourinary
HDR-BT	High-dose rate brachytherapy
HRQOL	Health-related quality of life
IMC	International medical center
IMRT	Intensity modulated radiation therapy
LNs	Lymph Nodes
MRI	Magnetic resonance imaging
NCIC	National cancer institute of Canada
PCa	Prostate cancer
PCOS	Prostate Cancer Outcomes Study
PCSS	Prostate Cancer Symptom Scale
POMS	Profiles of Moods States
PORPUS	Patient-Oriented Prostate Utility Scale
PSA	Prostate-Specific Antigen
PSR	Performance status ratings
PWB	Physical Well-Being
QOL	Quality of Life
Rth	Radiation therapy
RWD	Relationship with doctor
SF-36	Short Form-36
SWB	Social Well-Being
TRUS	Trans-rectal ultrasonic sound
UCLA-PCI	The University of California Los Angeles Prostate Cancer Index
VMAT	Volumetric modulated arc therapy

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Introduction

Prostate cancer is the second most commonly occurring cancer in men and the fourth most commonly occurring cancer overall. There were 1.3 million new cases in 2018 **(Ferlay J, et al., 2018).** In 2015, 2747 cases were diagnosed in Egypt, which accounts for 4.27% of all cases of cancer in men **(Ibrahim AS, et al., 2014),** and 3109 new patients in 2018 **(Freddie, et al., 2018)**.

Clinical cancer physicians and oncologists understand the significance of assessing survival and treatment clinical outcomes as well as the quality of life of patients in terms of individual symptom experiences, including physical , mental and social functions **(Bottomley A 2002, Velikova G, et al., 2012)** The growing number of people diagnosed with prostate cancer and raising life expectancies underline the value of determining the quality of life of these patients **(Eton DT, et al., 2002, Penson DF, et al., 2003).** A number of studies have shown that prostate cancer and its treatments affect urinary, intestinal and sexual function as well as physical and psychological health, with effects that appear to vary depending on the stage of the disease and the treatment given **(Eton DT, et al., 2002, Lane A, et al., 2016).**

The treatment options available for clinically localized cancer prostate (T1-3N0M0) **(Sobin LH, et al., 2009)** include: active surveillance, radical prostatectomy, brachytherapy, and external beam radiation therapy with or without hormone therapy **(Filson CP, et al 2015).**

Studies revealed that patients with prostatectomy were more probable than patients with radiation to have urinary incontinence at 2 years. Even after laparoscopy, the incidence of erectile dysfunction and urinary incontinence stayed unchanged **(Resnick MJ, et al. 2013)**.

Since most patients diagnosed with non-metastatic prostate cancer can survive longer than 10 years, it is essential to choose radiotherapy methods with minimized radiation therapy-related toxicity to improve the quality of life **(Ohri N, et al., 2012)**. However, higher doses are linked to increased normal tissue toxicity, such as late gastrointestinal (GI) toxicity and late genitourinary (GU) toxicity **(Zietman AL, et al., 2008)**.

New radiation therapy methods arose as technology improvements and were used in clinical practice. Three-dimensional conformal radiation treatment (3DCRT) provides a radiation dose that is consistent with the tumor

target volume. Thus, 3DCRT raises the target dose considerably while decreasing healthy tissue exposure **(Hanks GE. 2000)**. Radiation therapy techniques have evolved into an advanced form of 3DCRT, intensity modulated radiation therapy (IMRT), which generates non-uniform fields to increase the dose of radiation delivered to the target volume while minimizing the organs at risk irradiation. **(Marta GN, et al., 2014)**.

There are health-related quality of life (HRQOL) associated side effects for all these treatments, and it became an important issue to concern about while choosing the treatment method for the patients **(Lane A, et al., 2016)**.

As there are almost no data about HRQOL for cancer prostate patients treated by radiation therapy in Egypt, in this thesis we compared it between two groups of patients treated by two methods using their response outcomes to a licensed questionnaire FACT-P **(Functional Assessment of Cancer Therapy, 2007)**. These findings may facilitate treatment counseling of men with localized prostate cancer.

Aim of the Work

The aim of the work was to report on the quality of life outcomes in a number of male patients who underwent intensity modulated radiation therapy (IMRT) for clinically localized cancer prostate, compared to patients underwent 3D CRT, using licensed Arabic version of FACT-P questionnaire.

Anatomy of Prostate Gland and Pathophysiology of Prostate Cancer

The prostate gland is a single chestnut-shaped gland about the size of the peach pit (about 4 centimeters across and 3 centimeters thick) and encircles the proximal part of the urethra, just inferior to urinary bladder **(Shier et al., 2007)**. (Figure 1)

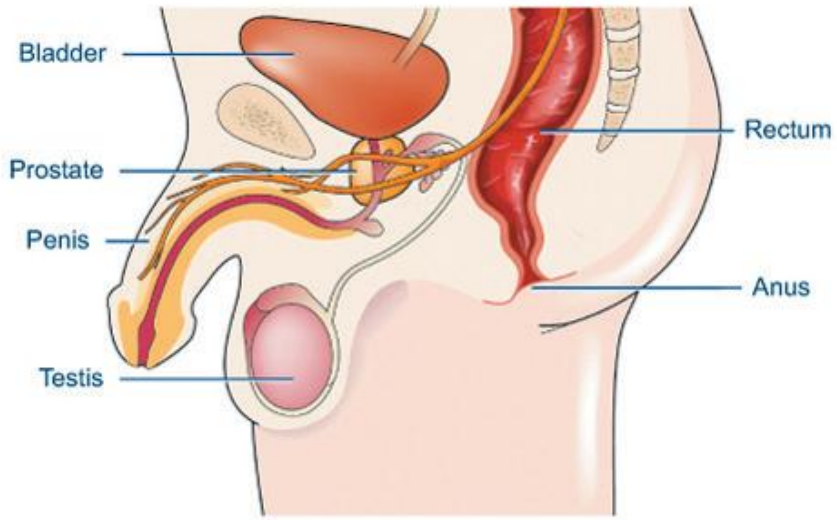

Figure (1): Schematic overview of the lower male genitourinary tract **(Taylor A, et al., 2004).**

Prostate cancer (Introduction):

About 95% of all prostate cancers are adenocarcinomas; then 4% that present transitional cell characteristics and are thought to develop from urothelial cells form the prostatic urethra. The remaining cases are either neuroendocrine or squamous cell carcinomas **(Chodak GW, et al., 2017)**.

The incidence age-standardized rate (ASR) is higher in the westernized countries (the highest ASR is in the United States then in Sweden) and lowest is in Asian countries **(McCance & Huether, 2006)**.

Although the incidence of prostate cancer is relatively high, the widespread use of preventive measures such as screening for Prostate-Specific Antigen(PSA), and digital rectal examination along with the different treatment modalities that are used early to treat prostate cancer help to decrease the age-adjusted death rate **(Bartsch et al., 2001)**.

The risk factors of localized prostate cancer are not well known. However some risk factors are confirmed like:

Age as risk increases with old aged men, as well as family history, whereas race and diet are still under debate **(Cepeda OA, et al., 2006, Bailey DB, et al., 2007)**.