Dean of Graduate Studies

Al-Quds University

Survival Analysis of the Registered Colorectal Cancer Cases in the Gaza Strip

Murad B. Alrun

MPH Thesis

Jerusalem-Palestine

1438/2017

Survival Analysis of the Registered Colorectal Cancer Cases in the Gaza Strip

Prepared by

Murad Basher Alrun

Bachelor of Nursing, Palestine College of Nursing, Gaza-Palestine

Supervisor: Dr. Khaled Ata Thabet

MD-PhD. Clinical Oncology-Cairo University

A Thesis Submitted in Partial Fulfillment of the Requirement for the Master Degree of Public Health/Health Management- Al-Quds University

1438/2017

Dedication

To my beloved parents who always give us the power, encouragement, and guidance for everything is good.

To my wonderful lovely wife Mona for her endless support, she is a continuous source of motivation, support, love, and hope.

To my amazing son Qais and beautiful daughter Mais who give me bright hope for tomorrow.

To my teachers in school, nursing college, and public health college for their efforts to be active person in our societies.

To my all friend and my all colleagues in the work.

To everyone had help me and contributed to finish this study.

Murad B. Alrun

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

Murad Basher Alrun

Date:

Acknowledgment

First and foremost I would like to express my gratitude to Allah -glorified and exalted be He-.

I deeply thank my supervisor Dr. Khaled Thabet who helped, advised, and contributed in each the study steps. Supervision was invaluable and even though he had busy work, he found time to the study.

I am grateful for Dr. Yehia Abed who contributed and extended his valuable assistance in the completion of this study.

My sincere thanks also go to Dr. Bassam Abu Hamad, Dr Khetam Abu Hamad, all academic staff, and employees at the School of Public Health for their help throughout my studying years. Also I would like to thank Dr. Sobhi Skaik for his valuable additions and remarks which enhance the study quality.

I would like to thank the amazing employees in the central archive at ministry of health for their kindly help in data collection process. Also special thanks to Mrs Haya Yaghi head officer of Cancer Registry in Gaza Strip for her kind help.

Also I would like to thank the wonderful staff at European Gaza Hospital, and Al-Shifa Hospital for their kindly help and facilitation.

Special thanks go to my friend Wesam Naser for his kind help along the way of doing my thesis.

I also would like to express my sincere thanks to work management at my work in Red Crescent Society for Gaza Strip for their kind help and encouragement throughout my study.

I would like to extend my special thanks to Dr. Mohammed Alrun for his encouragement and support of me throughout my study.

Last and not least, I express my very profound gratitude to my family and all my friends for providing me with unfailing support and continuous encouragement and through the process of researching and writing this thesis. This accomplishment would not have been possible without them.

Murad B. Alrun

Abstract

Colorectal Cancer (CRC) is the first major common cancer among men in Gaza Strip (GS) and it is considered the second common cancer after breast cancer for both sexes combined. Survival analysis for CRC cases is essential for monitoring and evaluation of health care system effectiveness in managing and fighting CRC. This non-concurrent prospective study was conducted to analyze the survival data for CRC cases who were diagnosed in the period 2008-2010, and to give estimates about overall survival rate, disease free survival rate, progression free survival. Beside exploring main factors may affect on survival rates for CRC in GS.

After some cases were excluded due to various causes, 207 cases were eligible for this study. The main source for data was the medical records for the cases, and data analysis was conducted by using SPSS program version 22. Kaplan-Meier method was used to provide overall survival estimates, survival estimates adjusted to selected prognostic factors and survival curves for subgroups, while the log rank test was used to assess survival differences between the subgroups. Cox regression survival analysis was used to examine the independent effect of study variables on survival data and to estimate the hazard ratio. Statistical significance was defined as P <0.05. The study findings showed that CRC incidence rate in Gaza Strip (GS) was 14/100000 in the study period (2008-2010).

Findings regarding socio-demographic characteristics of study population revealed that the mean of age at diagnosis for cases was 59.6 years, incidence rate among male is slightly higher than female (Male:54.6%, female:45.6%), 16.4% of cases were unmarried at time of diagnosis, while data about education level and work were missed from the majority of medical records. All cases presented with signs and symptoms at time of diagnosis. The common signs and symptoms were bleeding per rectum and abdominal pain 63.3%, 35.3% from all cases respectively. The most common histological type was Non-mucinous adenocarcinomas which accounted 86.7%. More than two third of cases were diagnosed with low grade tumor (grades 1, 2), while more than the half of patients (61.6%) were diagnosed with advanced stages (III, IV). Left-sided colon is the most common site for developing CRC with 52.3% of all cases. It followed with rectal cancer with 25.9%, while right-sided colon accounted only 21.9%. The study revealed that 5-year observed overall survival rate, disease free survival rate, and progression free survival rate probabilities to be 45%, 59% and 19% respectively.

According univariate analysis (log rank test) survival rate was significantly affected by co-morbidity status (P-value: 0.040), smoking (P-value: 0.002), stage at diagnosis (P-value< 0.001), tumor grade (P-value=0.41), tumor site (P-value=0.004), and treatment type (P-value=0.001). While the multivariate analysis (Cox regression) showed that only three prognostic factors had statically significant effect which were stage at diagnosis (P-value<0.001, 95%CI 2.673-9.034), Co-morbidity status (P-value=0.031, 95%CI, 0.434-0.962) and tumor site (P-value0.018, 95%CI, 0.373-0.912). Factors such as main treating hospital, diagnostic delay, treatment delay and place, sites of distant metastasis, gender, age, residency, or family history of cancer were found to be without statically significant effect on survival data for CRC cases in GS.

According the current study results, 5-years survival estimates in GS is poorer than the estimates in the developed countries, which were between 60-70% there. However, they are in line with most the estimates in the Arabic countries where the survival rates between 30-50%.

The study concluded that the absence of a national CRC screening program, poor public awareness and official attention, and absences/shortage of many cancer services in GS may be the main causes for poor CRC survival estimates. Decreasing gaps in the last three issues may contribute to enhance the survival data, prevent premature deaths, and promote the quality of life for CRC cases in GS.

Table of content

List of tables

List of figures

List of Annexes

List of Abbreviation

ACS	American Cancer Society
CBC	Complete Blood Cell
CRC	Colorectal Cancer
CT	Computed Tomography
CEA	Carcinoembryonic Antigen
DFS	Disease Free Survival
DRE	Digital Rectal Examination
EGH	European Gaza Hospital
FAP	Familial Adenomatous Polyposis
GG	Gaza Governorates
GS	Gaza Strip
HNPCC	Hereditary Non-Polyposis Colorectal Cancer
IARC	International Agency for Research on Cancer
MOH	Ministry of Health
MRI	Magnetic Resonance Imaging
NCI	National Cancer Institute (American)
NGOs	Non Governmental Organizations
NIH	National Institutes of Health (American)
OS	Overall Survival
OECD	Organisation for Economic Co-operation and Development
PCR	Palestinian Cancer Registry
PFS	Progression Free Survival
PHIS	Palestinian Health Information System
RSPH	Rantesi Specialist Pediatric Hospital
SoP	State of Palestine
TNM	Tumor size, Lymph node, Metastasis
UK	United Kingdom

UNRWA	United Nations Relief and Works Agency for the Refugee of Palestine in the Near East.
USA	United States of America
WAFA	Palestine News & Information Agency West Bank
WB	West bank
WHO	World Health Organization