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Sexual Dysfunction after Rectal Cancer Treatment

Biomedical Informatics in Clinical and Translational Research BIOM 564 Course
Certificate in Clinical & Translational Sciences. Masters of Science in Clinical Research
Jonathan D. Eldredge, PhD, Course Director and Domain Leader
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Abstract

Introduction: Treatment for rectal cancer results in sexual dysfunction. Sexual function is a component of the HR-QOL (health related quality of life) measures. The incidence of sexual dysfunction following treatment for rectal cancer and its impact on the HR-QOL is not well delineated, particularly on women.

Objectives: To prospectively assess the degree of sexual dysfunction that occurs after treatment for Stage I-III rectal cancer and the corresponding short term (<3 months) and long term (<2 years) effect on the Quality of Life measure for oncology (QOL-30).

Methods: Validated questionnaires will be administered to assess sexual function and quality of life. The International Index of Erectile Dysfunction will be administered to male patients and the Female Sexual Function Index to female patients. The European Organization for Research and Treatment of Cancer Quality of Life measure for oncology (EORTC QOL-30) and Quality of Life Questionnaire Colorectal Cancer Module (QOL-29) will be administered to assess quality of life. Survey's will be administered at the time of diagnosis of rectal cancer and repeat the instrument 3 months and 2 years after completion of therapy.

Results: The author identified relevant background literature from three databases: PubMed, Web of Science, and PsycInfo. The author accessed these databases via the University of New Mexico Health Sciences Library and Informatics Center and added to a citation manager.

Conclusion: There is growing interest in cancer survivorship and sexual function based on the current literature, but few prospective trials evaluating sexual function in rectal cancer patients.

Keywords: Rectal neoplasms; Sexual dysfunction, physiological; Quality of life; Bibliographic databases; Health Related Quality Of Life (HR-QOL); Medical informatics; Low anterior resection

Background:

Colorectal cancer is the third most commonly diagnosed cancer in men and women. Rectal cancer represents 28% of all colorectal cancers.¹. Treatment for rectal cancer results in insults to

gastrointestinal and genitourinary function. Sexual dysfunction after rectal cancer treatment has an estimated prevalence in up to 68% of men and 93% of women².

The improved efficacy of multimodal treatment for rectal cancer has resulted in increased overall and disease-free survival.^{3,4} Simultaneously there is growing recognition of the importance of survivorship in oncology care, which encompasses long term Health Related Quality Of Life (HR-QOL).⁵ One of the domains comprising HR-QOL is sexual function. Recognition of the contribution of sexual function on quality of life is expanding. The incidence of sexual dysfunction following treatment for rectal cancer and the impact on HR-QOL is not well delineated. Identification and treatment of sexual dysfunction in rectal cancer survivors has the potential to significantly improve quality of life.

Sexual dysfunction after treatment for prostate cancer has been studied using the International Index of Erectile Function (IIEF).⁶ Fewer data are available regarding sexual dysfunction in women after pelvic surgery using the Female Sexual Function Index (FSFI).⁷ These scales assess the physiologic components of sexual functioning.

This research project aims to quantify the incidence of sexual dysfunction in our patient population and query the impact on HR-QOL before and after treatment using the HR-QOL validated questionnaire. Understanding these variables will allow further work to develop treatments.

Methods:

The author searched PubMed, Web of Science and Psych info databases accessed via the Health Sciences Library and Informatics Center website. She included studies that focused on causes of sexual dysfunction, especially surgery, and excluded studies that were greater than 10 years old.

The PubMed search used “health related quality of life” as a MeSH major topic and added “physiological sexual dysfunctions” using the MeSH filter and “rectal neoplasms” (not restricting to major MeSH topic). Using “health related quality of life” as the major MeSH topic avoided obtaining a list of technical articles otherwise encountered when using “rectal neoplasms” as the MeSH major topic. This strategy resulted in 35 results, which were filtered by human, last 10 years, and English language. This resulted in 20 articles sorted by date. The author reviewed all the articles and added the relevant 17 articles to her Zotero database. By reviewing the “similar articles” and “cited by” sections for the relevant articles helped identify 5 additional articles.

The second search utilized the Web of Science database. The author entered “rectal neoplasms” in the topic search field and “sexual dysfunction” as the second topic search field and “health related quality of life” as the third search topic (using AND) and limited the results by the last 10 years and English language, which led to 48 results. This search and the “cited” section identified an additional 9 articles.

Lastly, a PsycInfo search used “quality of life or well being or health-related quality of life” as the major Descriptor topic AND “sexual dysfunction or sexual difficulty or sexual problems” AND neoplasms. Limiting to English language, the last 10 years, and human populations produced 43 citations.

Database and Search History	Retrieved
PubMed Search	20

(“Quality of life”[Majr]) AND “Rectal Neoplasms”[Mesh]) AND “Sexual Dysfunction, physiological” [Mesh] Filters: in the last 10 years, Humans, English, sort by: Most recent.	
Web of Science Search TOPIC: (rectal neoplasms) AND TOPIC: (sexual dysfunction) AND TOPIC: (health related quality of life) Databases= WOS, BCI, BIOSIS, CCC, DRCI, DIIDW, KJD, MEDLINE, RSCI, SCIELO, ZOOREC Timespan=2010-2020 Search language=Auto	48
Psych Info Search Major Descriptor topic (health related quality of life or hrqol or quality of life or qol) AND (neoplasms or oncology or cancer) AND (sexual dysfunction or sexual difficulty or sexual problems) Search modes - Boolean/Phrase Limiters - Publication Year: 2015-2020, English, Human	43

Results:

Sexual dysfunction is common after colorectal surgery and specifically after treatment for rectal cancer.⁸ Survivors experience erectile dysfunction, retrograde ejaculation, dyspareunia, and decreased sexual function and enjoyment.^{9 10} in addition to gastrointestinal symptoms such as fecal incontinence, incomplete evacuation and urgency.^{11 12 13} Despite the frequency of gastrointestinal and genitourinary side effects, physicians apparently do not adequately prepare patients for these likely results.¹⁴ Most investigations regarding health related outcomes after rectal cancer treatment utilize retrospective surveys. The few prospective trials that exist only

employed small study sizes.¹⁵ Few studies correlate sexual functioning with quality of life measures.¹⁶ Literature delineating treatment algorithms for sexual dysfunction in the setting of rectal cancer are few¹⁷ and is more common for treatment of male sexual dysfunction^{18,19} Data from gynecologic oncology studies suggest that psychological and socioeconomic factors influence sexual function in women after pelvic surgery and radiation.²⁰

Discussion:

We now have a more sophisticated understanding of the etiology of sexual dysfunction after rectal cancer treatment. We now recognize its multifactorial aspects. Radiation, chemotherapy and surgery each contribute to physiologic changes, which negatively impact different aspects of sexuality.

Psychosocial factors also play a significant role in sexual function, however. The impact of psychosocial factors is difficult to generalize and has traditionally gone underrecognized. Data has been extrapolated from the gynecological cancer patients to estimate long-term impact of radiation and pelvic surgery on women's sexual function.

The number of treatment options based on physiologic changes as the result of rectal cancer treatment are scarce with limited sample sizes and/or long-term data. Da Silva et al²¹ showed that women treated for colorectal cancer had deterioration in sexual function post treatment, both at 6 months and 12 months. Notably 81% of women surveyed (N=93) stated that discussion of sexual issues was extremely or somewhat important. Male patients who have undergone treatment for prostate cancer have been used as a surrogate measure for rectal cancer patients when estimating long-term sexual function. Rectal cancer surgery can damage both sympathetic and parasympathetic nerves which impacts erection and ejaculation in the immediate postoperative

period. New techniques are used to quantitatively measure sexual function in both men and women, which makes the ability to dissect out the physiologic variables more feasible. Tests specific for female function include pudendal arteriogram, vaginal photoplethysmography, and genito-sensory analyzer. Investigators have introduced measuring nocturnal penile tumescence and rigidity, dynamic duplex ultrasound, and dynamic infusion cavernosometry and cavernosography in men. Prospective work on sexual function is lacking in the literature as most studies do not include a pre-treatment evaluation of sexual function. This especially true for female rectal cancer patients for whom there is very limited prospective or retrospective data regarding sexual function.

This proposed study will begin to correct for this gap in our understanding.

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