



MALE SEXUAL HEALTH IN CANCER PATIENTS

MICHAEL LAO, MD

Assistant Clinical Professor
Division of Urology and Urologic Oncology
City of Hope National Medical Center

Disclosures



- I have nothing to disclose.

Introduction



- In 2020, ~1.8 million new cases of cancer will be diagnosed in the USA and ~600,000 people will die.
- In 2019, ~16.9 million cancer survivors in the USA. The number of cancer survivors is projected to increase to 22.2 million by 2030.
 - Defining many cancers as long term conditions
- ~39.5% of men and women will be diagnosed with cancer at some point during their lifetimes
- In 2020, ~16,000 children and adolescents will be diagnosed with cancer and 1,730 will die.

Introduction



- Erectile dysfunction (ED): Up to 30 million men in the USA and 150 million men worldwide
- Hypogonadism: Estimated 4 to 5 million men in the USA
- Infertility: ~15% of couples are unable to conceive after one year of unprotected intercourse.
 - Male factor is solely responsible ~20%, and contributory up to 50%.
 - Infertility affects 8–12% of couples globally, ~48.5 million couples worldwide
- Etiology: Non-cancer etiology, disease itself, and sequelae of treatment (Surgery, chemo/radiation)

- Martinez G, Daniels K, Chandra A . Fertility of men and women aged 15-44 years in the United States: National Survey of Family Growth, 2006-2010. Natl Health Stat Report. 2012 Apr 12; (51):1-28.
- <https://www.auanet.org/guidelines/guidelines/testosterone-deficiency-guideline>
- [https://www.auanet.org/guidelines/guidelines/erectile-dysfunction-\(ed\)-guideline](https://www.auanet.org/guidelines/guidelines/erectile-dysfunction-(ed)-guideline)

Introduction



- “There is no profit in curing the body if, in the process, we destroy the soul.”



Introduction



- Urologist role

- Uniquely positioned
 - Cancer care: Work up and treatment
 - Post cancer care
 - Quality of life care

- Often overlooked
 - In lieu of cancer care
 - Lack of expertise, knowledge, resources
 - In a survey of nearly 400 cancer survivors, 87% said they experienced sexual side effects
 - However, most said their oncologist had not formally asked.
 - Importance of sexual dysfunction is a common theme across multiple studies

- J. Taylor. Abstract 1042 Sexual Health Toxicity in Cancer Survivors: Is There a Gender Disparity in Physician Evaluation and Intervention? ASTRO 2020

Male Sexual Health: What Does It Mean?



- Sexual Functioning
 - Erectile function

- Psychosocial
 - Depression, anxiety
 - Erectile function, Low testosterone

- Hypogonadism
 - Low testosterone

- Fertility
 - Infertility
 - Low testosterone
 - Sperm cryopreservation

Sexual Function



- Rectal cancer survivors
 - Survivors with a permanent ostomy were more likely to be sexually inactive after surgery
 - Dissatisfaction with appearance, soilage of garments in bed, partner rejection, ostomy interference
 - Lower overall quality of life (QOL)

Sexual Function



- Prostate cancer survivors
 - Erectile difficulties are common after prostate cancer treatment
 - Prostatectomy, radiation, androgen deprivation
 - Climacturia, urinary incontinence
 - Men with greater sexual distress were more depressed, placed less value on sex, were less sexually satisfied.
 - Experience a range of psychological challenges: changes to self-identity, self-esteem and body image.

Sexual Function



- Testicular cancer survivors
 - RPLND: Retrograde ejaculation, failure of emission and ejaculation.
 - Orchiectomy: Hypogonadism

- Surgery
 - Pelvic and retroperitoneal surgery, orchiectomy, penectomy

- Chemoradiation
 - Pituitary
 - Hypothalamus
 - Local effects

Sexual Function



- Childhood cancers and gonadotoxic therapy.
 - Smaller testicle volume, abnormal semen parameters (spermatogenesis), low testosterone
 - Almost a quarter of men treated for childhood cancer suffer from low testosterone.

 - Adolescent and young adults
 - Cancer during this period has significant negative impact on erection, ejaculation, and orgasm
 - Male survivors often report low sexual interest and satisfaction, less frequently reported feeling sexually attractive and lower total number of sexual partners than males in the comparison group.
 - Males diagnosed with a CNS tumor more frequently reported sexual arousal problems
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- AM Stanton, AB Handy, CM Meston. Sexual function in adolescents and young adults diagnosed with cancer: A systematic review. J Cancer Surviv. 2018 Feb;12(1):47-63
 - KK Sundberg, C Lampic, J Arvidson et al. Sexual function and experience among long-term survivors of childhood cancer. Eur J Cancer. 2011 Feb;47(3):397-403.

Sexual Function: Erectile Dysfunction (ED)



- Erectile dysfunction (ED): Inability to obtain or maintain an erection firm enough for sexual intercourse
- Many men with cancer develop ED prior, during, and after treatment of their malignancy.
- Causes: Multi-faceted
 - Disease process itself
 - Fatigue, pain, anxiety regarding therapy, depression regarding cancer
- Chemotherapy, hormone therapy, surgery, and radiation can all cause sexual adverse effects.
 - ADT for prostate cancer: Loss of erectile ability, libido loss.
 - Chemotherapy/radiation induced vascular and neurotoxicity.
- Pelvic surgery: Injury to neurovascular pathways responsible for erections.
 - Abdominoperineal resection: Hypogastric plexus.
 - Cystoprostatectomy, prostatectomy, penectomy, RPLND, orchiectomy

Sexual Function



Table 1.

Cancer Treatment Effects on Sexual Dysfunction in Men

Cancer Treatment	Physical Effects	Post-treatment Adverse Effects
Orchiectomy	Lowers testosterone	Loss of libido
Androgen-deprivation therapy for prostate cancer		Decreased arousal Erectile dysfunction Trouble achieving orgasm
Radical prostatectomy	Damage to pelvic blood supply and nerves	Difficulty achieving and maintaining erections
Radical cystectomy	Removal of prostate and seminal vesicles	Having a dry orgasm with a feeling of pleasure but no ejaculate
Abdominoperineal resection	Creation of an ostomy	May leak urine at the moment of orgasm
Chemotherapy	Toxicity to pelvic blood supply, nerves	Orgasms may not feel the same as they did before cancer treatment
Pelvic radiation therapy	Toxicity to pelvic blood supply, nerves	Difficulty achieving and maintaining erections
RPLND for testicular cancer	Damage to nerves controlling ejaculation	Having a dry orgasm Orgasms may not feel the same as they did before cancer treatment
Partial or total penectomy for cancer of the penis	Removal of part or all of the penis	Erection possible after partial penectomy Orgasms and ejaculation continue to be possible, but body image affected

Abbreviation: RPLND, retroperitoneal lymph node dissection.

Psychosocial



- Depression and anxiety are common in patients with cancer diagnosis.
- Often neglected and not discussed. Can influence quality of life, adherence to treatment, and cancer survival.
- ED and depression are highly prevalent and interconnected. Men with high depression scores are nearly twice as likely to report ED than non-depressed men.

- A Pitman, S Suleman, N Hyde, A Hodgkiss. Depression and anxiety in patients with cancer. *BMJ*. 2018 Apr 25;361:k1415
- P Michael. Erectile dysfunction and depression: screening and treatment. *Urol Clin North Am*. 2011 May;38(2):125-39.
- M Waldinger. Psychiatric disorders and sexual dysfunction. *Handb Clin Neurol*. 2015;130:469-89.

Hypogonadism



- Hypogonadism: Low testosterone levels combined with symptoms or signs that are associated with low serum total testosterone.

- Primary (Testicular failure):
 - Defect in androgen production by the testicle: Chemotherapy or radiation causing Leydig cell damage

- Secondary (Gonadotropins):
 - Defects of hypothalamus or pituitary: Pituitary surgery, brain radiation, tumor itself (prolactinoma), chronic disease/illness.

- Xu P, Choi E, White K, et al. Low Testosterone in Male Cancer Patients and Survivors. *Sex Med* 2021;9:133-142.

Hypogonadism



- Low testosterone is common among patients with advanced cancer and cancer survivors.
 - About two thirds of male patients with advanced cancer have HPG dysfunction.
- There is evidence that low testosterone contributes to increased morbidity in male cancer patients.
- Testosterone replacement therapy (TRT) for cancer survivors and advanced cancer patients is not well studied or clear.
- Results of randomized controlled trials show potential benefit for TRT in hypogonadal male cancer survivors and those with advanced cancer.

- Xu P, Choi E, White K, et al. Low Testosterone in Male Cancer Patients and Survivors. *Sex Med* 2021;9:133-142.
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- Cory Faw, R Brannigan. Hypogonadism and cancer survivorship. *Curr Opin Endocrinol Diabetes Obes.* 2020 Dec;27(6):411-418.
- E Choi, P Xu, F El-Khatib, et al. Hypogonadism and its treatment among prostate cancer survivors. *Int J Impot Res.* 2021 May;33(4):480-487

Hypogonadism



- Why does it happen?
 - Chronic inflammation, comorbidities, cachexia, chemotherapy, and medications such as opioids, and corticosteroids contribute to primary and secondary hypogonadism.
- Testicular cancer: Survivors of testicular were 3x as likely as their normal counterparts to have hypogonadism due to impaired Leydig cell function.
- Prostate cancer
 - Men treated with ADT suffer from hot flashes, sexual dysfunction
 - Expected outcome

Fertility



- Survival for malignancies has improved and many express desire to have biological children
- Males of reproductive age
 - Germ cell tumors, lymphomas
- Gonadotoxic effects of cancer treatment on fertility are well established
- Radiation for testicular cancer can cause significant sperm DNA damage that can last up to 2 years after treatment.
- Alkylating agents (Cyclophosphamide, ifosfamide): Pose greatest risk to infertility
- Lower risk chemotherapies: methotrexate, fluorouracil, bleomycin etc.

Fertility



- Disease process influences spermatogenesis.
 - Oligospermia seen up to 57% in leukemia, 28% in testicular cancer, 70% in Hodgkin's Lymphoma

- Multifactorial causes
 - Spermatogenesis is uniquely sensitive to environment
 - Hypercatabolic state
 - Dysregulation of fertility hormones
 - Changes in endocrine and nutritional milieu
 - Cytokine release effect on spermatogenesis

Fertility



- Sperm banking
 - Remains the most effective way for a man to maintain future fertility after cancer treatment.
- Roughly 15% of cases of newly diagnosed cancer are men younger than 55 years, and about one quarter of them are younger than age 20
- Unfortunately, in many cases, sperm cryopreservation remains underutilized
 - A survey in the UK revealed that only 38% of oncologist provided patients with information about fertility. Similar findings in the USA.
 - Insufficient time to discuss sperm freezing
 - A lack of knowledge
 - Poor perceived success of fertility preservation

- H Rozati, T Handley, C Jayasena. J Clin Med. 2017 Sep 19;6(9):89

Treatment: Sexual Function



- Multi disciplinary team approach
- Counseling, psychiatrist, mental health practitioners.
- PDE5i
- ICI
- Vacuum erection device
- Intraurethral suppository
- IPP
- Alpha agonists

Treatment: Hypogonadism



- Diet, exercise

- Testosterone replacement therapy
 - Intramuscular injections
 - Gels
 - Buccal
 - Oral
 - Nasal
 - Testosterone pellets
 - SERMS (Selective estrogen receptor modulators), hcg, AI (Aromatase inhibitors)

Treatment: Fertility



- SERMS (Selective estrogen receptor modulators)
- HCG
- AI
- IUI/IVF
- TESE
- Donor sperm/egg
- Adoption

Treatment: Sexual Function



- Barriers

- Men can feel stigmatized admitting that they have a sexual problem.
- Physician dismissal.
- Insufficient patient instruction
- Leaving partner out of treatment plan
- Mental health service in insurance plan
- Exclusion of treatment of sexual dysfunction



MICHAEL LAO MD

Mlao@coh.org

Cell: 626-873-4791