

Evidence of Prostate Cancer Progression in Transgender Women After Hormone Replacement Therapy - Scoping Review Protocol

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Abstract

This scoping review aims to discover the extent and quality of evidence regarding prostate cancer (PC) progression outcomes in transgender women who have undergone hormone replacement therapy with a secondary focus on the oncogenic mechanisms potentially impacted in this population.

Background

- PC is the 2nd most prevalent cancer diagnosed in men in the US.
- Testosterone is a critical player in the normal development of PC.
- Transgender females undergo gender affirming therapy to suppress secondary male sex characteristics.
- The prostate is not removed to prevent complications, leading to the possibility of PC in transgender females. Reducing androgen levels may help with PC prevention, but estrogen therapy can heighten pre-existing risks.
- Lack of documented cases of PC in the transgender community due to lack of trust with the medical community, leading these individuals susceptible to late diagnosis and lack of education.

Methods

- This scoping review will consider experimental, quasi-experimental, observational studies, and systematic reviews that meet our inclusion criteria.
- From these sources, this scoping review will extract data on the gender affirming therapy received (age, treatment duration, types of HRT), the methodology used for PC detection and treatment, rates of PC in transgender females, molecular pathways altered by HRT and any key findings relevant to our objective and review question.
- The review will exclusively look at studies in healthcare and research settings.

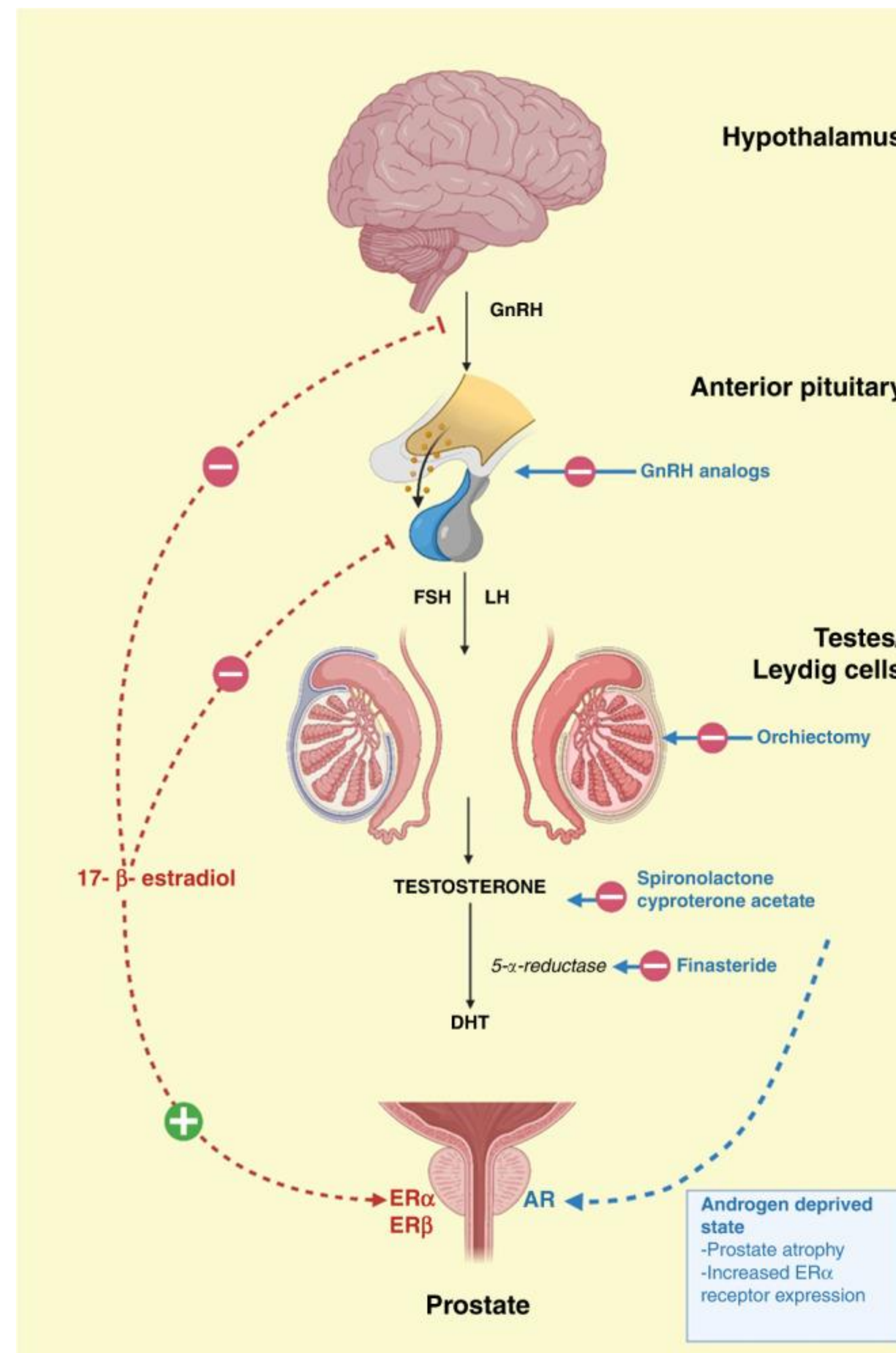
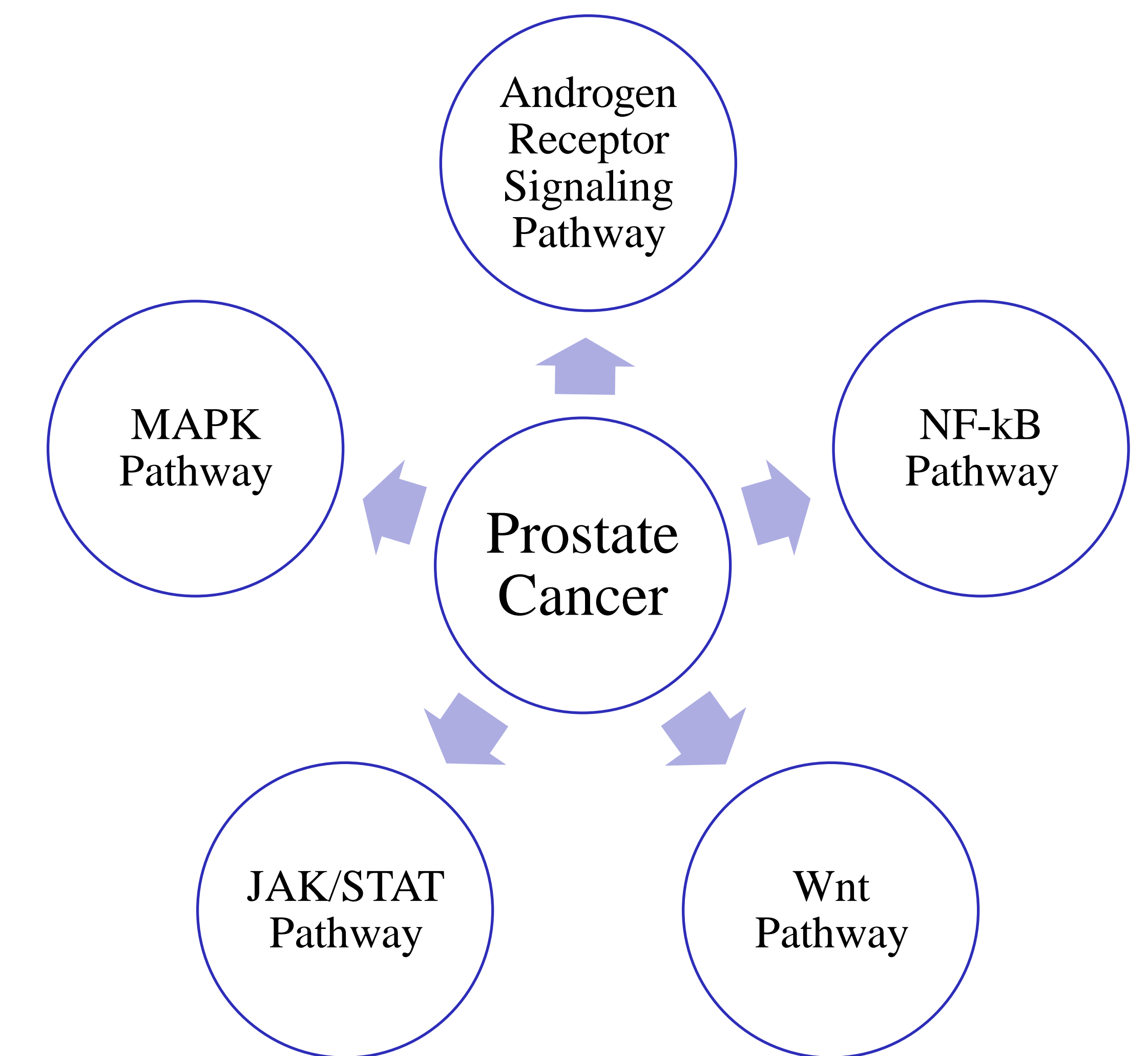


Diagram of Androgen Pathway and HRT Drugs

GnRH agonists use negative feedback to prevent the anterior pituitary from releasing LH, so the testes do not produce testosterone. AR Blocker inhibits the effects of androgens. Orchietomy is the surgical removal of the testes. 5-alpha-reductase converts testosterone to DHT. Leuprolide is a GnRH agonist and spironolactone is an AR blocker used in hormone replacement therapy for transgender females. ER-alpha and ER-beta receptors have proliferative and anti-proliferative effects on the prostate



Different Pathways in the Pathogenesis of Prostate Cancer

- In some patients, the reduction of androgen levels in transgender females may aid in PC prevention.
- However, this is not always the case, as estrogen therapy has the potential to augment a patient's pre-existing risks.
- Estrogen and progesterone, rather than testosterone or dihydrotestosterone, can activate the androgen receptor containing a common T878A mutation, leading to modulation of NF-kB signaling, MAPK pathway, JAK/STAT pathway, and WNT pathways

Results/Conclusion

This scoping review aims to provide information on the relationship between PC progression in transgender women and oncogenic signaling pathways impacted by HRT to recommend a direction for future transgender research and the importance of secure transgender healthcare.

Acknowledgments / References

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