DETECTION OF ANDROGEN RECEPTOR INCIDENCE IN GYNAECOLOGICAL CANCERS AND ITS RELEVANCE IN HIGH GRADE SEROUS EPITHELIAL OVARIAN CANCERS

Mariam Anjum Ifthikar¹ Anupama R¹ D.K.Vijaykumar ¹ Indu R Nair ² Anjaly ³

¹-Dept Of Gynaecologic Oncolgy,Amrita Institute Of Medical sciences,Kerala,India

²-Dept Of Pathology,Amrita Institute Of Medical sciences,Kerala,India

³-Dept Of Biostatistics,Amrita Institute Of Medical sciences,Kerala,India

Targeting Androgen receptors (ARs) results in important salutary effects in prostate malignancy. Exploring the impact of hormonal manipulation of AR receptors has not been widely pursued beyond prostate cancer ,despite mounting evidence that ARs also participate in the pathogenesis and/or progression of diverse tumors.

This study describes patterns of AR expression in a spectrum of cancers, and the potential to exploit this knowledge in the clinical therapeutic setting.

AIM:

The aim of this study is to estimate the incidence of expression of androgen receptor in gynaecological cancers and association of expression of androgen receptor status with Stage, Cytoreduction And Progression Free Survival in high grade epithelial ovarian cancers.

METHODS:

Prospective observational study-20 months duration

Conducted at Amrita Institute of Medical Sciences,South India

September 2016 till June 2018 -99 consecutive gynaecological cancers

Data obtained from hospital information system online database.

All patients who are undergoing upfront primary surgery for gynaecological cancers were included.

Exclusion criteria were the ones who underwent NACT or RT upfront,recurrent disease,benign or borderline pathology.

Details of Receptors expression by using immunohistochemical staining for AR,ER,PR is done in the tissue samples . Results were analysed using IBM SPSS version 20.0, Pearson Chi square test was used.

Outcome is correlated with association of androgen receptor status with Stage, Cytoreduction And PFSin high grade epithelial ovarian cancers .

Results:

In the course of our study, ARs were differently expressed in different histotypes of gynaecological cancers cancer (n=99); AR expression is 45%(n=9/20) of 20 carcinoma endometrium,9.1%(n=1/11)cases in cervical cancers and 100% in sarcoma and ovarian cancers 40.6%(n=64),more highly expressed in HGSC 61.5%(n=41/64) but its association with AR is not statistically significant(p=0.78) .

Of note, all of the HGSC samples AR expression was associated with neither stage,cytoreduction of EOC nor progression free/overall survival. AR-positivity was associated with improved overall survival, and AR negativity was associated with recurrence but not reaching a statistical significance.

Association between the presence of Progesterone receptor and age group was found to be statistically significant.PR was present in 66.7% of cases <50 years of age group and 34.6% of cases >50 years of age and the difference was statistically significant(p value=0.04).

Association between the absence of Progesterone receptor and recurrence group was found to be statistically significant.PR was absent in 33.3% of recurrence and in 6% of cases PR was positive and difference was statistically significant.(p value=0.05)

Table 1: Distribution Of Androgen Receptor , Estrogen Receptor ,Progesterone Receptor Expression Profiles Various Studies

Table 2: Distribution Of Sex Steroid Hormone Receptor Profile With Ovarian Cancers

Table 3: Association Of AR With Gynaecological Cancers in The Study Population

Table 4: Incidence Of AR In The Study Population

Table 15– Association Of AR With I And Type II Ovarian Tumour

Figure 1: Kaplan Meier Curve by DFS Type and AR positivity

SEX STEROID HORMONE RECEPTOR PROFILE	OVARIAN CANCER (n=64)	PERCENTAGE
ANDROGEN RECEPTOR	26	40.60
ESTROGEN RECEPTOR	53	82.80
PROGESTERONE RECEPTOR	34	53.10
p 53	43	67.20
WT1	45	70.30

GYNAECOLOGICAL CANCER (n=99)	ANDROGEN RECEPTOR		p value
	PRESENT	ABSENT	
ENDOMETRIUM (n=20)	9 (45%)	11(55%)	p=0.78
OVARIAN(n=64)	26(40.6%)	38(59.4%)	
OTHERS(n=15) (Cervical,sarcoma)	5(33.3%)	10(66.7%)	

OVARIAN CANCER (n=64)	ANDROGEN RECEPTOR		p value
	PRESENT	ABSENT	
TYPE I			0.72
(n=23)	10(43.5%)	13(56.5%)	
TYPE II			
(n=41)	16(39%)	25(61%)

CONCLUSION:

- An effective and clinically applicable molecular classification of HGSC can be grouped in our cohort based on ER,PR and AR receptor status
- This study describes patterns of AR expression in a spectrum of gynaecological cancers .
- There is No statistical significant association of androgen receptor positivity in high grade serous cancers with Stage,Cytoreduction And Progression Free Survival.
- In PR positive receptors there is statistically significane with younger age and recurrence , thereby the potential to exploit this knowledge in the clinical therapeutic setting.

1.Nodin B, Zendehrokh N, Brandstedt J,et al .Increased androgen receptor expression in serous carcinoma of the ovary is associated with an improved survival. J Ovarian Res. 2010(3):14

2.Zheng Feng1,2*, Hao Wen1,2*, Rui Bi2,3*, et al .A clinically applicable molecular classification for high-grade serous ovarian cancer based on hormone receptor expression2016 May 16;(4) 6:25408 | www.nature.com/scientificreports