

**GYNAECOMASTIA IN PATIENTS RECEIVING TLE AND ZLN REGIMENS**Gundramy Reddy Sravani\*<sup>1</sup>, D. Sravani<sup>1</sup>, P. Kali Prasanna<sup>1</sup>, M. Rameela<sup>1</sup> and T. S. Durga Prasad<sup>2</sup><sup>1</sup>Pharm D Intern, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati.<sup>2</sup>Assistant Professor, Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati.**\*Corresponding Author: Gundramy Reddy Sravani**

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**ABSTRACT**

Gynaecomastia is being palpated clinically when glandular tissue exceeds 0.5cm. The glandular tissue is usually soft, elastic or firm, over a period tissue becomes more fibrous, denser and hard. Gynaecomastia can occur due to many reasons like drug induced, liver cirrhosis, chronic kidney failure, hyperthyroidism, testicular or adrenal tumors and imbalance between androgen and estrogen. In our study drug induced was found to be the main cause for the occurrence of Gynaecomastia as patients does not fall under other category. This is a case study representing two patients with Gynaecomastia one receiving TLE (Tenofovir 300mg + Lamivudine 300mg + Efavirenz 600mg) and other receiving ZLN (Zidovudine 300mg + Lamivudine 150mg + Nevirapine 200mg). Diagnosis of Gynaecomastia is difficult, but based on research articles and rechallenge drug involved in the Gynaecomastia was found. Gynaecomastia is being treated by use of Tamoxifen 20mg for 3 months in case-1 and withdrawal of regimen in case-2.

**KEYWORDS:** Gynaecomastia, TLE, ZLN.**INTRODUCTION**

Gynaecomastia is the benign proliferation of glandular breast tissue, it is being palpated clinically when glandular tissue exceeds 0.5cm. The incidence of Gynaecomastia in HIV (Human Immunodeficiency Virus) men was 0.8/100 patients/year. The prevalence was found to be 1%.<sup>[1]</sup> Gynaecomastia found to be unilateral in about 50% of affected men. The glandular tissue is usually soft, elastic or firm, over a period tissue becomes more fibrous, denser and hard. Differential diagnosis regarding Gynaecomastia and breast cancer should be made properly.<sup>[2]</sup> Mostly Gynaecomastia was observed in patients exposed to Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI)- EFAVIRENZ, and Nucleoside Reverse Transcriptase Inhibitors (NRTIs)- ZIDOVUDINE, STAVUDINE and DIDANOSINE.<sup>[3,4]</sup> The exact mechanism of EFAVIRENZ induced Gynaecomastia was not known but different hypothesis exists, that is imbalance between oestrogens and androgens, Altered steroid hormone metabolism by Cyp. 450 enzymes and direct estrogenic effect of drug.<sup>[1,3]</sup>

This is a study reporting two HIV patients, one receiving TLE (TENOFVIR 300mg + LAMIVUDINE 300mg + EFAVIRENZ 600mg) and other receiving ZLN (ZIDOVUDINE 300mg + LAMIVUDINE 150mg + NEVIRAPINE 200mg) induced Gynaecomastia.

**CASE-1**

A 49 year old Male patient was diagnosed with HIV on 2015 January initiated with ZLN regimen twice daily. After 13 months patients developed Gynaecomastia.

All the vitals were normal, Hb level of 12g/dl, CD4+ count of 324 cells/  $\mu$ L was found. Respiratory system, Cardiovascular system, Central nervous system was normal. On examination Breast tenderness not associated with pain unilaterally on left side (Figure -1).

USG (Ultrasonography) and fine needle aspiration on cytology (FNAC) was performed. USG revealed crusts of benign ductal epithelial cells with haemorrhage and focal fibromyoid stroma cells which was also supported by FNAC indicating Gynaecomastia.

Then patient was treated with TAMOXIFEN 20mg/day for 3 months. Slowly regression of breast tissue was observed. After 6 months of follow up Gynaecomastia resolved completely.

A causality assessment of probable was made according to the WHO assessment scale.



**Figure 1: ZLN therapy induced Gynecomastia on left breast.**

**CASE-2**

A 52 year old Female male patient was diagnosed as HIV on January 2017 at a local hospital and started with TLE therapy once daily. Later after 3 months patient developed swelling of left breast (Figure – 2). Patient was not on any other medication except ART (Anti Retroviral Therapy) regimen.

On examination patient is conscious and coherent, vitals were normal, mammography and breast ultrasonography reveled nodular, swollen glandular tissue in the retroareolar region. Examination of all systems were normal.

Gynecomastia was thought to be due to EFAVIRENZ, hence a new regimen including TLN was started. After 6 months of follow up Gynecomastia has completely regressed and there was no swelling. Later, the patient was transferred to tirupati ART centre, lack of stock again patient was prescribed with TLE therapy after one month patient again developed swelling of the breast. Then regimen was changed to TLN later 3 months of follow up swelling reduced completely.

A casuality assessment of certain was made according to the WHO assessment scale.



**Figure 2: TLE therapy induced Gynecomastia after rechallenge.**

**DISCUSSION**

Gynecomastia can occur due to many reasons like drug induced, liver cirrhosis, chronic kidney failure, hyperthyroidism, testicular or adrenal tumors and imbalance between androgen and estrogen.<sup>[4]</sup> Among these illnesses, In our study drug induced was found to be the main cause of Gynecomastia. The drug induced Gynecomastia generally becomes normal after medication discontinuation or by giving TAMOXIFEN as happed in our study.

Antiretroviral drugs such as Stavudine, Didanosine, Efavirenz, Nevirapine, Zidovudine has been reported to cause Gynecomastia.<sup>[5]</sup>

Efavirenz is most common to induce Gynecomastia which was also reported by Oche et.al study.<sup>[6]</sup> But ZIDOVUDINE induced Gynecomastia was rarely reported which was also supported by Himanshu Bhusan S et.al.<sup>[4]</sup>

The exact mechanism of Efavirenz and Zidovudine induced Gynaecomastia was not well known but different hypothesis exists among them imbalance between oestrogens and androgens is common. Estrogens stimulate breast tissue growth whereas androgens antagonize breast tissue growth.<sup>[1,3,4]</sup>

It is difficult to diagnose which drug caused Gynaecomastia. In Case-1 As patient was on ZLN among those Zidovudine induced Gynaecomastia is reported compared to Lamivudine and Nevirapine thus it is considered as a drug that induced Gynecomastia. In Case-2 patient was on TLE, after 3 months Gynecomastia developed and a new regimen TLN was started. Later after transfer to tirupati again TLE was started Gynecomastia developed again, As rechallage is also being performed Efavirenz is considered as a drug that induced Gynecomastia.

Zidovudine induced Gynecomastia can be treated by prophylactic use of 20mg/day Tamoxifen or Raloxifene 60mg/day for 3-9 months.<sup>[7]</sup> As reported by Kenji et.al study Gynecomastia can be reverted over a period of time with out any treatment.<sup>[8]</sup> If Gynecomastia pursues for more than 1-2 years then surgical management (Surgical excision through endoscopic methods) is the therapeutic option.<sup>[9]</sup>

Efavirenz induced Gynecomastia can be treated by completely withdrawal and start a new regimen.<sup>[4]</sup> In our study, case-1 was treated with Tamoxifen 20mg for 3 months, thus Gynecomastia was resolved. In case-2 Efavirenz was withdrawn, thus Gynecomastia was resolved after 3 months.

**CONCLUSION**

Gynecomastia is mostly observed in patients receiving Efavirenz and Zidovudine. This can be prevented and

treated by early detection and careful monitoring patients receiving Efavirenz and Zidovudine.

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#### DECLARATIONS

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