

## **ABSTRACT:**

**Introduction:** Uterine fibroids are one of the common smooth muscle benign tumours of the female genital tract found universally. The incidence of uterine fibroids ranges from 20% - 30% among the Indian women population and so it is considered as one of the public health problem. Relaxin is an insulin like peptide hormone and has been demonstrated in both reproductive and non – reproductive organ of humans. Physiologically the actions of this hormone receptor have its role in the signal transduction pathway, connective tissue metabolism and angiogenesis

**Aim:**To study the expression of the relaxin receptor in the human uterus and uterine fibroid by immunohistochemistry.

**Materials and methods:** 29 post hysterectomy specimens were collected from the known case of uterine fibroids. Tissues collected from the fibroid and the adjacent myometrium were processed and stained with haematoxylin and eosin for normal histological study. Collagen was studied using a special stain, Masson's Trichrome. These sections were taken up for the immunohistochemical analysis to study the relaxin receptor expression intensity.

**Results:** The mean age of the women from whom the specimen collected was 42.7%. Among the specimen collected 62.06 % were single fibroids and 37.9% were multiple fibroids. Normal histology was studied in both the normal myometrium and leiomyoma by H&E stain and phase of endometrium was analysed. Masson's trichrome study showed increased proportion of collagen in the maximum number of fibroids when compared to normal myometrium. Analysis of relaxin receptor expression was done and categorized as weak, moderate and strong. Following this, association between the phases of endometrium and relaxin receptor expression was studied which showed weak intensity in proliferative phase of fibroid tissues and moderate intensity in the adjacent myometrial tissue. While in the secretory phase the myometrium showed moderate to strong intensity and fibroid showed weak to moderate intensity. Then the relation between ECM and relaxin receptor expression findings helped us to conclude that the role of relaxin as tumour inducer and antifibrotic therapeutic agent stands questionable.

**Conclusion:** Based on the above mentioned observations of the relaxin receptor in the fibroid tissue, the role of relaxin as a tumor stimulator and antifibrotic is still debateable.