

EVALUATION OF SERUM TAURINE LEVEL IN PATIENTS WITH ENDOMETRIAL CANCER

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Introduction

Endometrial Cancer: Endometrial cancer is the most common type of uterine cancer

Risk factors of endometrial cancer: Obesity, Unopposed estrogen therapy, polycystic ovarian syndrome, Tamoxifen therapy, Hypertension, Diabetes mellitus, Pelvic radiation therapy and endometrial hyperplasia. Abnormal vaginal bleeding is a prevalent symptom in endometrial cancer, affecting roughly 90% of diagnosed patients. Physical examination commonly reveals an obese, hypertensive, postmenopausal woman, although approximately 35% of patients are not obese and show no signs of hyperestrogenism. Developing a screening tool of low cost, high feasibility, and high diagnostic accuracy for endometrial cancer is still a maturing area of research. The main modalities used include transvaginal ultrasound (TVS) and endometrial sampling. The latter has been used both alone and in combination with hysteroscopy. Although TVS has been used as a first-line screening tool, there is lack of consensus on an appropriate cutoff value for endometrial thickness (ET) in asymptomatic premenopausal women, and interval cancers are known to occur.

Laboratory Testing: Taurine (2-aminoethanesulfonic acid), a naturally occurring amino acid found throughout the body, plays a crucial role in ensuring the proper functioning of the central nervous system, retinal neurons, and cardiac and skeletal muscles. Recent research highlights additional benefits, including anti-inflammatory, antioxidant, and blood sugar control properties. Studies indicate it has the ability to inhibit cancer cell proliferation and induce apoptosis, which is programmed cell death Top of Formin certain cancers, possibly through regulation of proteins involved in cell death pathways. It's important to note that research on taurine's antitumor effects is in its early stages. The underlying mechanisms by which taurine exerts these effects are not fully understood. However, this initial research offers promising evidence and warrants further investigation into the potential clinical application of taurine in cancer treatment.

Antitumor Effect of Taurine:

- Taurine suppresses Tumor Growth by boosting Antioxidant Capacity
- Taurine Exhibits Antitumor Effects through Immune Regulation
- Taurine Promotes Apoptosis in Tumor Cells

It's important to acknowledge the limitations in our current understanding of taurine's antitumor effects. The precise mechanisms by which taurine exerts these effects remain unclear. In particular, more research is needed to elucidate the specific signaling pathways involved in taurine-induced tumor cell death. As research into taurine's role in cancer deepens, its potential as a valuable tool in the fight against cancer becomes increasingly evident. Future exploration in this area holds immense promise for the development of novel therapeutic strategies for cancer patients

Aim of the work

The aim of the work was to evaluate the role of serum taurine levels in clinico-pathological aspects of endometrial carcinoma patients.

Subjects and Methods

PATIENTS: This is a randomized prospective study which will be conducted on 120 patients presenting with abnormal uterine bleeding, dividing them into:

Cases: 60 patients with abnormal uterine bleeding diagnosed as endometrial cancer by D&C and histopathological examination.

Control: 60 patients with abnormal uterine bleeding not due to endometrial cancer proved by D&C and histopathological examination.

METHODS:

- Observational case – control study.
- Prospective study. Carried on at El Shatby Maternity University Hospital, Obstetrics and Gynecology Department of the Faculty of Medicine, Alexandria.

Following an informed consent each patient in the study was subjected to:

1. History: *Comprehensive history taking with emphasis on:*

- Past history, including medical history (e. g. Tamoxifen-unopposed estrogen-contraceptive method- chemotherapy- radiotherapy) and diseases (e. g. Hypertension-diabetes- other malignancy).
- Past gynecological and obstetrical history: parity, gravidity, age of menarche, if menopausal or not and if menopausal since when.
- Complaint and present history of patients including onset and course.

2. Physical examination: - Complete general and abdominal examination.
- Bimanual vaginal and rectal examination.

3. Investigations: The routine laboratory investigations as complete blood count, bleeding time, coagulation time, fasting blood sugar, liver and renal function tests.

4. Vaginalultrasoundexamination to detect (thickness&echogenisty of endometrium, endometrial fluid and endometrial-myometrial hallow).

5. Endometrial biopsieswere taken from patients after doing Fractional Dilatation and Curettage.

6. Chest x- ray to detect the presence of lung metastasis.

7. Pre-operativebloodsamples from patients with endometrial cancer were collected then centrifuged with the serum withdrawn and frozen at – 20°C.

Results

Table 1: Comparison between the two studied groups according to Taurine level

ELISA	Cases (n = 60)	Control (n = 60)	U	p
Min. – Max.	0.0 –21.50	13.02 –48.0	1489.0	0.103
Mean ± SD.	15.59 ±4.27	16.63 ±6.20		
Median (IQR)	16.45 (14.19 –17.91)	15.18 (14.01 –16.98)		

Table 2: Relation between ELISA (taurine level) and Histopathology for cases group (n = 60)

Histopathology	N	ELISA (taurine level)		U	P
		Mean ± SD.	Median (Min. – Max.)		
Myometrial invasion					
No	55	15.28 ±4.29	16.14 (0.0 –20.71)	44.00*	0.010*
Yes	5	19.01 ±2.06	18.45 (16.17 –21.50)		
Aspiration cytology					
No	52	16.79 ± 2.10	16.77 (12.38 – 21.5)	5.0*	<0.001*
Yes	8	7.83 ± 6.47	11.94 (0.0 – 13.92)		
Omental metastasis					
No	51	16.84 ± 2.09	16.78 (12.38 – 21.50)	12.0*	<0.001*
Yes	9	8.54 ± 6.42	11.99 (0.0 – 14.25)		
Lymph node affection					
No	51	16.84 ± 2.09	16.78 (12.38 – 21.5)	12.0*	<0.001*
Yes	9	8.54 ± 6.42	11.99 (0.0 – 14.25)		

Conclusion

Taurine cannot be used as a marker for the early diagnosis of some tumors, but taurine shows antitumor effect by improving antioxidant capacity, enhancing immunity, and inducing apoptosis of tumor cells. At the same time, taurine combined with chemotherapy drugs can improve the efficacy of chemotherapy drugs and reduce their adverse reactions. However, the mechanism of taurine's antitumor effect is still in its infancy, and there are few studies on the signaling pathway involved in taurine-induced tumor cell apoptosis. With the deepening of the research, involving much larger population samples, adjustment of other factors that may affect Taurine level as BMI and medical diseases. The antitumor effect of taurine will present a huge potential as a promising therapeutic strategy for cancer in the future.



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