

## Original Research

### Assessment of lipid profile level in patients with endometrial cancer

<sup>1</sup>Jayant Kumar, <sup>2</sup>Aditya Jamwal, <sup>3</sup>Ishant Sharma

<sup>1</sup>MD Pathologist, NSCB Zonal Hospital, Mandi, Himachal Pradesh, India;

<sup>2</sup>MD Pathologist, Civil Hospital, Sundernagar, Mandi, Himachal Pradesh, India;

<sup>3</sup>MD Pathologist, Civil Hospital, Palampur, Himachal Pradesh, India

#### ABSTRACT:

**Background:** A greater amount of adipose tissue is thought to improve efficiency by which androstenedione converts into estrone, resulting in higher estrogen levels, which are positively associated with EC risk. The present study was conducted to assess lipid profile level in patients with endometrial cancer. **Materials & Methods:** Data records of 20 patients of endometrial cancer were put in group I and control with no endometrial cancer in group II. Records were assessed for lipid profile such as HDL, LDL, cholesterol, VLDL etc. **Results:** Age group 20-40 years had 6 in group I and 8 in group II and 40-60 years had 14 in group I and 12 in group II. The mean triglycerides (mmol/l) was 5.24 in group I and 4.82 in group II, total cholesterol (mmol/l) was 1.40 in group I and 1.06 in group II, HDL-cholesterol (mmol/l) was 1.34 in group I and 1.12 in group II and LDL-cholesterol (mmol/l) was 1.70 in group I and 1.72 in group II. The difference was significant ( $P < 0.05$ ). **Conclusion:** Triglycerides were consistently associated with a greater EC risk in this prospective study. These results suggest that lipid metabolism, particularly TG, is a possible mechanism through which obesity is linked to EC.

**Key words:** endometrial cancer, lipid profile, women

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**Corresponding Author:** Jayant Kumar, MD Pathologist, NSCB Zonal Hospital, Mandi, Himachal Pradesh, India

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#### INTRODUCTION

Endometrial cancer is the second most common cancer among female cancer survivors in the US, with an estimated 757,190 survivors in 2017.<sup>1</sup> In addition, it is one of the few cancers in the US with an increase in incidence rates.<sup>2</sup> The death rate for this cancer has also been increasing, with an average increase of 1.4% per year between 2005-2014 and an estimated 10,470 deaths in 2016. The overall five-year survival for endometrial cancer is 87%.

A greater amount of adipose tissue is thought to improve efficiency by which androstenedione converts into estrone, resulting in higher estrogen levels, which are positively associated with EC risk.<sup>3</sup> Additionally, estrogen is thought to inhibit actions of peroxisome proliferator activated receptor alpha (PPAR-alpha), a ligand activated transcription factor that is heavily involved in catabolism of fatty acids

and lipoproteins.<sup>4,5</sup> However, few epidemiological studies have investigated whether commonly measured markers of the lipid metabolism as well as glucose, which may have changed following overweight or obesity, are associated with the risk of EC.<sup>6,7</sup> The present study was conducted to assess lipid profile level in patients with endometrial cancer.

#### MATERIALS & METHODS

The present study comprised of data records of 20 patients of endometrial cancer. Data such as name, age etc. was recorded. Data records of endometrial carcinoma patients were put in group I and control with no endometrial cancer in group II. Records were assessed for lipid profile such as HDL, LDL, cholesterol, VLDL etc using autoanalyzer. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

Age group (years)	Group I	Group II	P value
20-40	6	8	0.05
40-60	14	12	

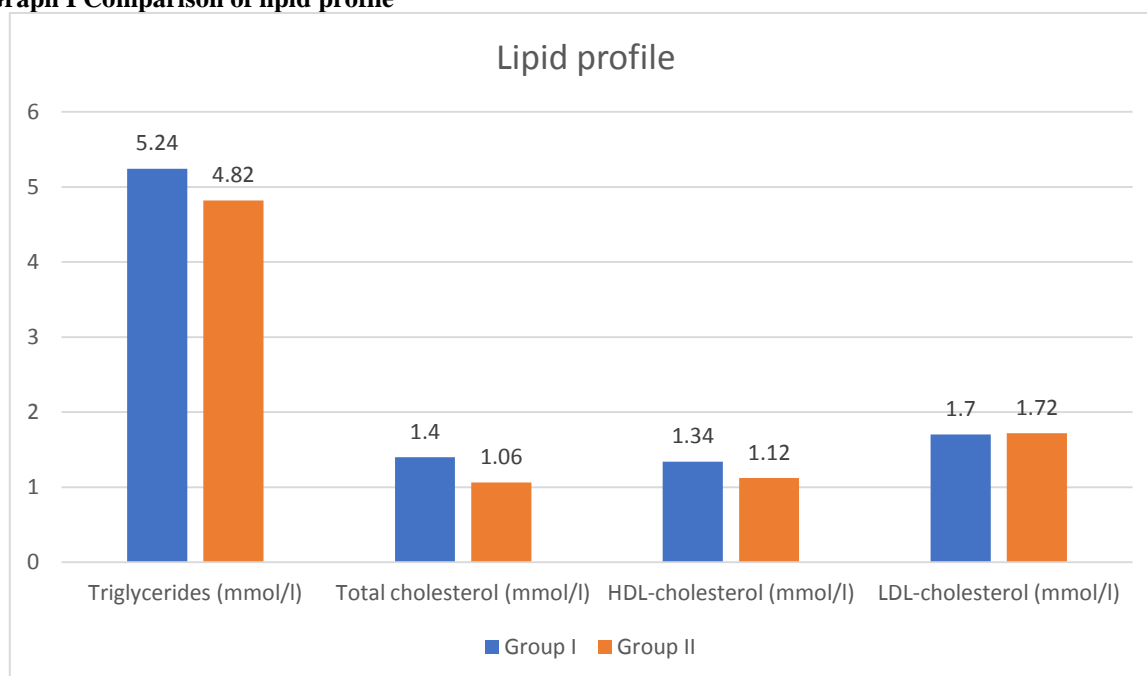
Table I shows that age group 20-40 years had 6 in group I and 8 in group II and 40-60 years had 14 in group I and 12 in group II.

**Table II Comparison of lipid profile**

Lipid profile	Group I	Group II	P value
Triglycerides (mmol/l)	5.24	4.82	0.05
Total cholesterol (mmol/l)	1.40	1.06	0.01
HDL-cholesterol (mmol/l)	1.34	1.12	0.03
LDL-cholesterol (mmol/l)	1.70	1.72	0.91

Table II, graph I shows that mean triglycerides (mmol/l) was 5.24 in group I and 4.82 in group II, total cholesterol (mmol/l) was 1.40 in group I and 1.06 in group II, HDL-cholesterol (mmol/l) was 1.34 in group I and 1.12 in group II and LDL-cholesterol (mmol/l) was 1.70 in group I and 1.72 in group II. The difference was significant ( $P < 0.05$ ).

**Graph I Comparison of lipid profile**



## DISCUSSION

Incidence rates of endometrial carcinoma show wide inter-country variations. Carcinoma of the corpus uteri is a disease of affluent societies and countries with westernized lifestyles. Most recent data show incidence rates from 0.4 per 100,000 in Qidong, China.<sup>8</sup> Increasing body mass index (BMI) is strongly associated with endometrial cancer (EC) incidence and death.<sup>9</sup> A meta-analysis including 19 reviews and prospective studies showed that per 5kg/m<sup>2</sup> increase in BMI a woman's risk of development of EC increased with 59%.<sup>10</sup> The molecular mechanisms underlying how adipose tissue and obesity contribute to the pathogenesis of EC are becoming better understood and have revealed a number of rational strategies, both behavioral and pharmaceutical, for the prevention of both primary and recurrent disease.<sup>11</sup>

The present study was conducted to assess lipid profile level in patients with endometrial cancer.

In present study, age group 20-40 years had 6 in group I and 8 in group II and 40-60 years had 14 in group I and 12 in group II. Seth et al<sup>12</sup> assessed possible links between lipid profiles and EC risk, while also taking into account BMI, parity, and menopausal status at baseline. They created a cohort of 225,432 women with baseline values for glucose, triglycerides (TG), and total cholesterol (TC). Two subgroups of 31,792 and 26,317 had, in addition, baseline measurements of HDL, LDL, apolipoprotein A-I and apoB and BMI, respectively. We used Multivariate Cox proportional hazards models to analyze quartiles and dichotomized values of these lipid components for a link to EC risk. During mean follow-up of 12 years (SD: 4.15), 1,144 persons developed endometrial cancer. A statistically

significant association was found between TG and EC risk when using both quartiles and a clinical cut-off (Hazard Ratio (HR): 1.10, 1.34, and 1.57 for the 2nd, 3rd, and 4th quartile, compared to the 1st, with P-value for trend.

We found that mean triglycerides (mmol/l) was 5.24 in group I and 4.82 in group II, total cholesterol (mmol/l) was 1.40 in group I and 1.06 in group II, HDL-cholesterol (mmol/l) was 1.34 in group I and 1.12 in group II and LDL-cholesterol (mmol/l) was 1.70 in group I and 1.72 in group II. Bel'skaya et al<sup>13</sup> in their case-control study included 107 patients, which were divided into 3 groups: the main group (patients with diagnosed ovarian and endometrial cancer, n = 51), the reference group (patients with non-malignant ovarian and endometrial pathologies, n = 26) and the control group (healthy individuals, n = 30). The content of lipids, the level of lipid peroxidation products (diene and triene conjugates, Schiff bases, malondialdehyde) were determined in all saliva samples. A modified Folch method was used to obtain a lipid extract of saliva, which was analyzed using FT-IR spectroscopy. Non-parametric statistical methods are used for data processing. It has been shown that it is possible to determine changes in lipid levels in ovarian and endometrial cancer using saliva. It has been established that the ratio of the intensity of the absorption bands 2923/2957 cm<sup>-1</sup> is statistically significantly reduced against the background of the pathologies of the ovaries and the endometrium in both the early and advanced stages of the disease, which can be used as a new diagnostic criterion. Additionally, there was a violation of lipid peroxidation processes in cancer, which can also be assessed by the IR spectra of saliva lipid extracts.

## CONCLUSION

Authors found that triglycerides were consistently associated with a greater EC risk in this prospective study. These results suggest that lipid metabolism, particularly TG, is a possible mechanism through which obesity is linked to EC.

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