

Examining the Effect of Hypertension, Type-2 Diabetes Mellitus and Obesity on Endometrial Cancer Staging at Diagnosis

EPH124

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BACKGROUND

- Uterine endometrial cancer (EC) is the most prevalent gynecologic malignancy in the U.S, with around 60,000 cases reported annually¹
- Early EC detection prior to extrauterine spread translates to improved five-year survival rates, from 81% to 95%²
- The most common comorbidities for endometrial cancer include hypertension, obesity and diabetes³

OBJECTIVE

This retrospective study aims to determine if there exists a relationship between various common comorbidities of EC and staging at diagnosis

METHODS

- Premier Healthcare Database was used to identify women ≥ 18 years diagnosed with endometrial cancer (ICD-10: C54.1) between January 2016 and June 2019
- EC stage was categorized using ICD-10 codes: I & II in the uterus, III involving nearby tissues and lymph nodes, and IV affecting distant sites (e.g., bladder and bowel) (Table 1)
- ICD-10-CM, ICD-10-PCS, and CPT codes were also used to identify pre-existing conditions and comorbidities of interest, which included hypertension, type-2 diabetes mellitus (T2DM), hyperlipidemia, and obesity
- Chi-squared tests and univariate analyses were conducted to determine the impact of pre-existing conditions on EC stage progression



Table 1: ICD-10 Codes Used to Identify EC Stages III & IV Progression

Stage	ICD-10 Code(s)	Diagnosis/Description
Stage III		
	C77.2	Secondary and unspecified malignant neoplasm of intraabdominal lymph nodes
	C77.5	Secondary and unspecified malignant neoplasm of intrapelvic lymph nodes
	C79.6x	Secondary malignant neoplasm of ovary
	C79.8x	Secondary malignant neoplasm of genital organs
Stage IV		
	C77.x*	Secondary and unspecified malignant neoplasm of lymph nodes
	C78.x	Secondary malignant neoplasm of respiratory and digestive organs
	C79.x**	Secondary malignant neoplasm of other and unspecified sites

* Excludes C77.2 & C77.5; ** Excludes C79.6x & C79.82

RESULTS

- A total of 9,615 patients with an EC diagnosis were identified, of whom 5,564 (57.9%) had Stage I/II EC, 1,922 (19.9%) had Stage III EC, and 2,129 (22.2%) had Stage IV
- Overall, mean age was 65.0 ± 11.2 years, 75.5% were White, 21.8% were Black, and 53.5% were commercially insured (Table 2)
- The most common pre-existing condition among patients with an EC diagnosis was hypertension (n=4898; 50.9%), followed by hypercholesterolemia and/or hyperlipidemia (n=3,104; 32%)
- Pre-existing hypertension (OR=1.35), type-2 diabetes mellitus (OR=1.96), and hyperlipidemia (OR=1.20) were all associated with increased risk for progression to Stage IV EC (Figure 1)
- Patients with morbid obesity had twice the risk of Stage IV EC progression compared to overweight patients (OR=2.13) (Figure 1)

FIGURE 1: Forest Plot with outcomes of interest and odds ratios (ORs)

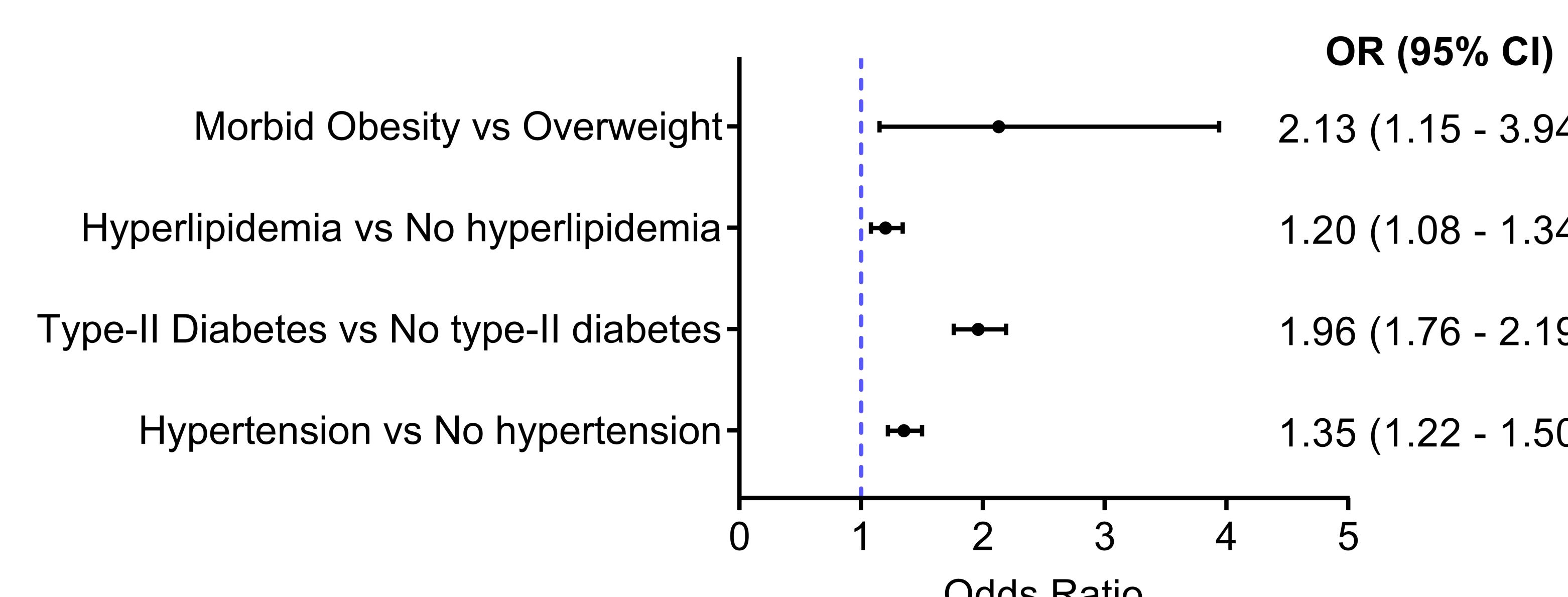


Table 2: Patient Characteristics and Pre-existing Conditions

Characteristic/Condition (N=2,129)	Overall (%) (N=9,615)	Stage I/II (N=5,564)	Stage III (N=1,922)	Stage IV (N= 2,129)
Age, Mean \pm SD	65.0 ± 11.2	59.5 ± 8.1	70.1 ± 1.7	78.2 ± 4.6
Self-reported Ethnicity/Race				
White	7,282 (75.5)	4,228 (58.1)	1,454 (15.1)	1,600 (16.6)
Black	2,095 (21.8)	1,200 (57.3)	418 (20.0)	477 (22.8)
Unspecified	238 (2.8)	136 (57.1)	50 (21.0)	52 (21.8)
Payor				
Commercial	5,144 (53.3)	3,121 (60.1)	1,042 (20.2)	981 (19.1)
Medicaid	988 (10.3)	492 (49.8)	182 (18.4)	314 (31.8)
Medicare	2,959 (30.8)	1,664 (56.2)	594 (20.1)	701 (23.7)
Other*	524 (5.4)	287 (54.8)	104 (19.8)	133 (25.4)
Patient History				
Polycystic ovary syndrome	60 (0.6)	16 (26.7)	12 (20.0)	32 (53.3)
HNPPC	11 (0.1)	9 (81.8)	2 (18.2)	0 (0.0)
Ovarian/breast cancer	367 (3.8)	220 (59.9)	65 (17.7)	82 (22.3)
Abnormal menstruation	111 (1.2)	57 (51.4)	18 (16.2)	36 (32.4)
Endometrial hyperplasia	48 (0.5)	20 (41.7)	5 (10.4)	23 (47.9)
CCI, Mean \pm SD	7 ± 3.4	6 ± 3.3	8 ± 3.3	9 ± 3.3
Mean Hospital Charges (\$)	-	\$58,166	\$76,337	\$78,497
Comorbidities of Interest				
Hyper-cholesterolemia/ lipidemia	3,104 (32)	1,671 (53.8)	709 (22.8)	724 (23.3)
Diabetes	2,425 (25.2)	1,174	518	733
Hypertension	4,898 (50.9)	2,645	1,080	1,173
BMI				
Overweight	115 (115)	81 (70.4)	21 (18.3)	13 (11.3)
Obesity	1,588 (16.5)	199 (12.5)	1,052 (66.2)	337 (21.2)
Morbid Obesity	1,994 (20.7)	115 (5.8)	352 (17.6)	1,527 (76.6)

HNPPC: Hereditary non-polyposis colorectal cancer; CCI: Charlson Comorbidity Index;

* Includes Charity, Indigent, Self Pay, Workers Comp, Direct Employer Contract, and Other Government Payors

CONCLUSIONS

- This study found significant associations between pre-existing hypertension, T2DM, hyperlipidemia and morbid obesity with the progression to stage IV EC
- The findings highlight the need for targeted screening and interventions for women with pre-existing conditions to reduce the risk of advanced-stage EC

REFERENCES

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