**Table S1.** Data collected from the clinical records of the patients enrolled in the study, either cases or controls.

| **Data collected from the clinical records of the patients enrolled in the study, either cases or controls.** |
|---|
| Age |
| BMI |
| Date of biochemical and haematologic analysis at admission |
| Patient and control comorbidities, including smoking, hypertension, diabetes, renal failure, chronic liver failure, solid or blood cancer, lipid profile. |
| Previous hospitalization, previous administration of a broad-spectrum antibiotic |

**Table S2.** Clinical characteristics, comorbidities in patients and controls.

| **Clinical characteristics, comorbidities in patients and controls** | | | | | | |
|---|---|---|---|---|---|---|
| **Characteristics** | **Controls N=69** | **CrO N=118** | **P value** | **Patients with Ovarian Cancer Stages I-II N=27** | **Patients with Ovarian Cancer Stages III-IV N=91** | **P value** |
| Age, years Mean (SD) | 53(10.5) | 54(11.8) | 0.619 | 48(15.2) | 55.5(10.1) | 0.09 |
| BMI, kg/m2 Mean (SD) | 27(5.1) | 28.5(5.2) | 0.07 | 27(4.6) | 28.9(5.4) | 0.02 |
| Exposure unknown, N(%) | 3(4) | 0 | 0.05‡ | 0 | 0 | - |
| BMI≥30 kg/m2 N(%) | 16(23) | 41(35) | 0.103‡ | 8(30) | 32(35) | 0.650 |
| N/A, N | 0 | 11 | 0.0008‡ | 5 | 6 | 0.123‡ |
| Triglycerides, mmol/L Mean (SD) | 1.35(0.6) | 1.48(0.6) | 0.08 | 1.36(0.6) | 1.51(0.7) | 0.873 |
| HDL cholesterol, mmol/L Mean (SD) | 1.52(0.3) | 1.27(0.3) | <0,0001 | 1.36(0.4) | 1.24(0.3) ** | 0.363 |
| Cholesterol, mmol/L Mean (SD) | 5.78(1.1) | 5.92(1.1) | 0.26 | 5.72(1.2) | 5.79(1.1) | 0.934 |
| Smoking,N | 7 | 9 | 0.594‡ | 1 | 8 | 0.68‡ |
| Exposure unknown, N | 2 | 4 | >0.999‡ | 1 | 3 | >0.99‡ |
| Diabet, N | 0 | 9 | 0.03‡ | 2 | 7* | >0.99‡ |
| Exposure unknown, N | 5 | 5 | 0.50‡ | 2 | 3 | 0.32‡ |
| Hypertension, N | 17 | 44 | 0.13‡ | 6 | 38 | 0.10‡ |
| Exposure unknown, N | 12 | 6 | 0.01‡ | 2 | 4 ** | 0.62‡ |
| Up to 48 years old, N | 21 | 30 | 0.498‡ | 12 | 18 | 0.02‡ |

Note: * P<0,05; ** P<0,02 compared to control. P – Unpaired t-test. ‡Two-sided Fisher's exact test.

**Table S3**: Clinical characteristics of cohort patients in accordance with the International Federation of Gynecology and Obstetrics (FIGO) classification [Prat J; FIGO Committee on Gynecologic Oncology. Staging classification for cancer of the ovary, fallopian tube, and peritoneum. Int J Gynaecol Obstet. 2014 Jan;124(1):1-5. doi: 10.1016/j.ijgo.2013.10.001],

[Mutch DG, Prat J. 2014 FIGO staging for ovarian, fallopian tube and peritoneal cancer. Gynecol Oncol. 2014 Jun;133(3):401-4. doi: 10.1016/j.ygyno.2014.04.013.]

| **Clinical characteristics of patients in accordance with the International Federation of Gynecology and Obstetrics (FIGO) classification** | |
|---|---|
| **Characteristics** | **CrO N=118 N(%)** |
| **Histologic types** | |
| High-grade serous carcinoma (HGSC) | 83 (70) |
| Low-grade serous carcinoma (LGSC) | 5 (4) |
| Mucinous carcinoma (MC) | 3(2) |
| Endometrioid carcinoma (EC) | 10(9) |
| Clear-cell carcinoma (CCC) | 10(9) |
| Malignant germ cell tumors | 2(2) |
| Cannot be classified | 5(4) |
| **FIGO stages** | |
| I | 17(14) |
| II | 10(9) |
| III | 61(52) |
| IV | 30(25) |

**Table S4.** Laboratory findings of iron status at admission.

| **Laboratory findings of iron status at admission.** |
|---|
| Serum iron |
| Total iron binding capacity |
| Transferrin Saturation (TSAT) |
| Serum Transferrin |
| Serum Ferritin |
| Hemoglobin |

**Supplemental S1.**

**Genotyping SNPs G845A rs 1800562 and C187G rs 1799945 of the *HFE*.**

Single Nucleotide Polymorphisms (SNPs) G845A rs 1800562 and C187G rs 1799945 of the *HFE* gene were genotyped in individuals with elevated TSAT (>40%) or ferritin of 400 μg/L or more as we described earlier (Ivanova TI, 2015). DNA was extracted from 300 μL of whole blood using Wizard Genomic DNA Purification Kit (Promega, Madison, WI, USA). Genotypes were determined by a PCR-based restriction fragment length polymorphism (RFLP) technique. The 389-bp fragment of the *HFE* gene including codon Cys282Tyr was amplified with primers F 5'- TGGCAAGGGTAAACAGATCC and R 5'-CTCAGGCACTCCTCTCAACC; the 208-bp fragment of the *HFE* gene containing codon His63Asp was amplified using primers F 5'-ACATGGTTAAGGCCTGTTGC and R 5'- GCCACATCTGGCTTGAAATT. The fragments were amplified in 25-μL reaction volume containing 0,625 U of HotStarTag polymerase (Quiagen, Valencia,USA), 0,15 mM dNTPs, 0,2 μM primers, and 50 ng of genomic DNA. PCR-reactions were carried out as follows: at first 15 min denaturing at 95 °C, and then 30 cycles (30 s at 94 °C, 1 min at 60 °C, 30 s at 72 °C) for *HFE* and final 10 min extension at 72 °C. Amplified fragments were digested with either Rsa I (Promega, Madison, WI, USA) or BclI (SIGMA, Saint Louis, MO, USA) for detection of the Cys282Tyr or His63Asp of the *HFE* gene.

**Table S5.** Data on genotyping of the *HFE* gene in individuals with iron overload.

| **Data on genotyping of the *HFE* gene in individuals with iron overload** | | | | | |
|---|---|---|---|---|---|
| Patients code | Age | G845A rs 1800562 | Status G845A | C187G rs 1799945 | Status C187G |
| Est1177 | 35 | GG | wild types | GG | homozygous |
| Est1202 | 70 | GA | heterozygous | CC | wild types |
| Est1218 | 47 | GG | wild types | CG | heterozygous |
| Est1225 | 45 | GG | wild types | CG | heterozygous |