Carcinoma of the Ovary

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STAGING

Anatomy

Primary site
The ovaries are a pair of solid, oval-shaped organs, 2–4 cm in diameter, that are connected by a peritoneal fold to the broad ligament and by the infundibulopelvic ligament to the lateral wall of the pelvis.

Nodal stations
The lymphatic drainage occurs by the utero-ovarian and round ligament trunks and an external iliac accessory route into the following regional nodes: external iliac, common iliac, hypogastric, lateral sacral, and para-aortic nodes, and occasionally, to inguinal nodes.

Metastatic sites
The peritoneum, including the omentum and pelvic and abdominal viscera, is a common site for seeding. Diaphragmatic and liver-surface involvement are common. Pulmonary and pleural involvements are frequently seen.

Rules for classification

Ovarian cancer is staged surgically. There should be histologic confirmation of the disease. Operative findings, prior to tumor debulking, determine stage, which may be modified by histopathologic as well as clinical or radiological evaluation. Laparotomy and resection of the ovarian mass, as well as hysterectomy, form the basis for staging. Biopsies of all suspicious sites, such as omentum, mesentery, liver, diaphragm, pelvic and para-aortic nodes, are required. The final histologic findings after surgery (and cytologic ones when available) are to be considered in the staging. Clinical studies include routine radiology of the chest. Imaging studies and serum tumor markers may be helpful in both initial staging and follow-up of the tumors.

Evaluation of surgical staging
Laparotomy and biopsy of all suspected sites of involvement provide the basis for staging. Histologic and cytologic data are required.

Postsurgical treatment – pathologic staging
This should include laparotomy and resection of ovarian masses, as well as hysterectomy. Biopsies of all suspicious sites, such as the omentum, mesentery, liver, diaphragm and pelvic and para-aortic nodes, are required. Pleural effusions should be aspirated for cytology.

Surgical staging classification

FIGO nomenclature (Rio de Janeiro, 1988)
Staging is based on findings made mainly at surgical exploration. Clinical evaluation and imaging studies should be done as appropriate. These findings may affect final staging. The histology is to be considered at staging, as is cytology as far as effusions are concerned.

Histopathology

The task forces of FIGO endorse the histologic typing of ovarian tumors as presented in the WHO publication no. 9, 1973, and recommend that all ovarian epithelial tumors be subdivided according to a simplified version of this. The types of tumors classified are as follows: serous, mucinous, endometrioid, clear cell (mesonephroid), undifferentiated and unclassified.

- Serous tumors
  - Benign serous cystadenomas
  - Of borderline malignancy: serous cystadenomas with proliferating activity of the epithelial cells and nuclear abnormalities, but with no infiltrative destructive growth (carcinomas of low potential malignancy)
  - Serous cystadenocarcinomas
- Mucinous tumors
  - Benign mucinous cystadenomas
  - Of borderline malignancy: mucinous cystadenomas with proliferating activity of the epithelial cells and nuclear abnormalities, but with no infiltrative destructive growth (carcinomas of low potential malignancy)
  - Mucinous cystadenocarcinomas
- Endometrioid tumors
  - Benign endometrioid cystadenomas
  - Endometrioid tumors with proliferating activity of the epithelial cells and nuclear abnormalities, but with no infiltrative destructive growth (carcinomas of low potential malignancy)
  - Endometrioid adenocarcinomas
- Clear cell tumors
  - Benign clear cell tumors

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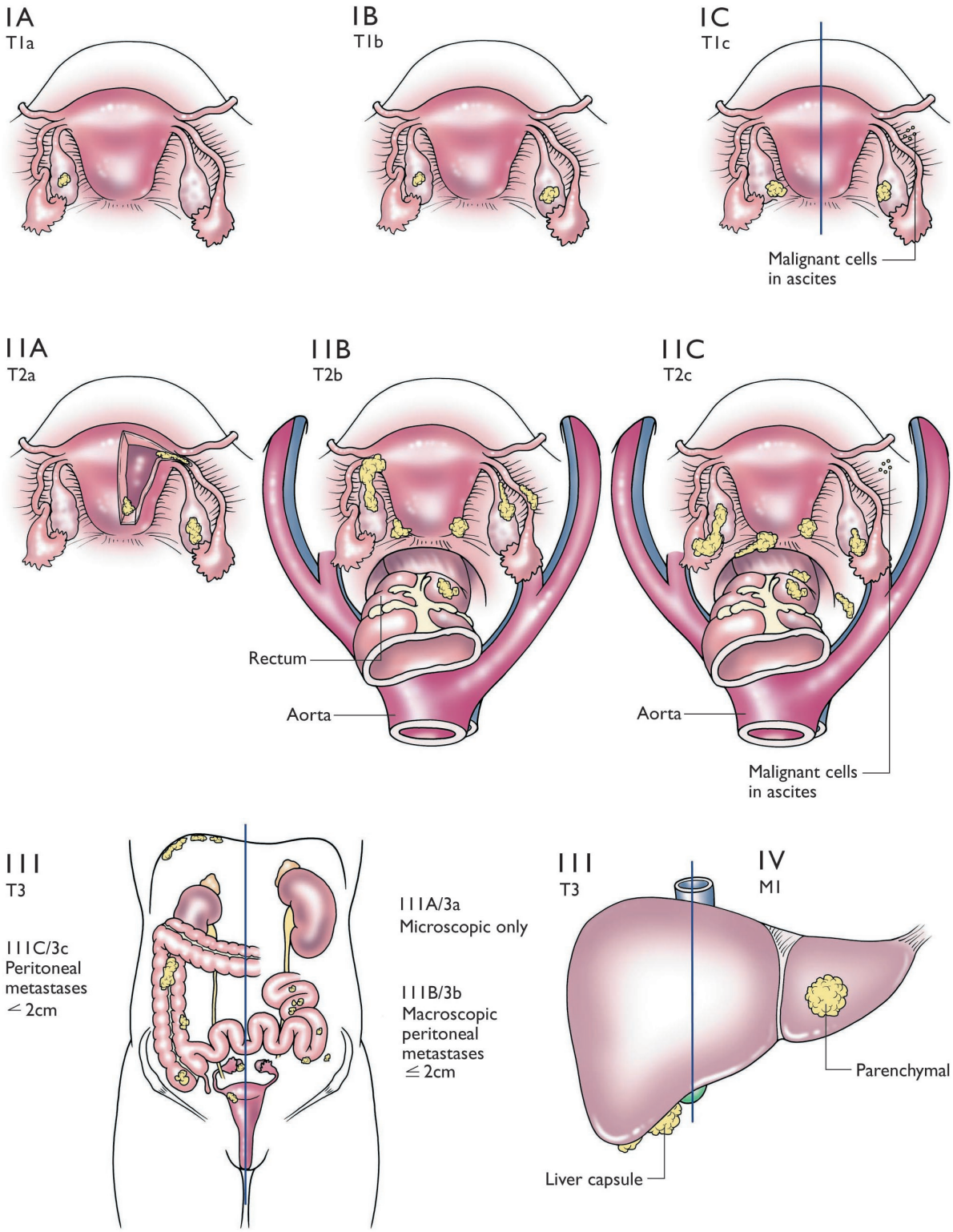

Fig. 1. Carcinoma of the ovary. Staging ovarian cancer: primary tumor and metastases (FIGO and TNM).

Table 1
Carcinoma of the ovary: FIGO nomenclature (Rio de Janeiro 1988)

Stage I	Growth limited to the ovaries	
	Ia	Growth limited to one ovary; no ascites present containing malignant cells. No tumor on the external surface; capsule intact
	Ib	Growth limited to both ovaries; no ascites present containing malignant cells. No tumor on the external surfaces; capsules intact
	Ic[a]	Tumor either Stage Ia or Ib, but with tumor on surface of one or both ovaries, or with capsule ruptured, or with ascites present containing malignant cells, or with positive peritoneal washings
Stage II	Growth involving one or both ovaries with pelvic extension	
	IIa	Extension and/or metastases to the uterus and/or tubes
	IIb	Extension to other pelvic tissues
	IIc[a]	Tumor either Stage IIa or IIb, but with tumor on surface of one or both ovaries, or with capsule(s) ruptured, or with ascites present containing malignant cells, or with positive peritoneal washings
Stage III	Tumor involving one or both ovaries with histologically confirmed peritoneal implants outside the pelvis and/or positive retroperitoneal or inguinal nodes. Superficial liver metastases equals Stage III. Tumor is limited to the true pelvis, but with histologically proven malignant extension to small bowel or omentum	
	IIIa	Tumor grossly limited to the true pelvis, with negative nodes, but with histologically confirmed microscopic seeding of abdominal peritoneal surfaces, or histologic proven extension to small bowel or mesentery
	IIIb	Tumor of one or both ovaries with histologically confirmed implants, peritoneal metastasis of abdominal peritoneal surfaces, none exceeding 2 cm in diameter; nodes are negative
	IIIc	Peritoneal metastasis beyond the pelvis >2 cm in diameter and/or positive retroperitoneal or inguinal nodes
Stage IV	Growth involving one or both ovaries with distant metastases. If pleural effusion is present, there must be positive cytology to allot a case to Stage IV. Parenchymal liver metastasis equals Stage IV	

[a] In order to evaluate the impact on prognosis of the different criteria for allotting cases to Stage Ic or IIc, it would be of value to know if rupture of the capsule was spontaneous, or caused by the surgeon; and if the source of malignant cells detected was peritoneal washings, or ascites.

  - Clear cell tumors with proliferating activity of the epithelial cells and nuclear abnormalities, but with no infiltrative destructive growth (low potential malignancy)
  - Clear cell cystadenocarcinomas
- Brenner
  - Benign Brenner
  - Borderline malignancy
  - Malignant
  - Transitional cell
- Undifferentiated carcinomas: a malignant tumor of epithelial structure that is too poorly differentiated to be placed in any other group.
- Mixed epithelial tumors: these tumors are composed of two or more of the five major cell types of common epithelial tumors (types should be specified).
- Cases with intraperitoneal carcinoma in which the ovaries appear to be incidentally involved and not the primary origin should be labeled as extra-ovarian peritoneal carcinoma.

Histopathologic grade (G)

- GX: Grade cannot be assessed
- G1: Well differentiated
- G2: Moderately differentiated
- G3: Poorly or undifferentiated

Table 2
Carcinoma of the ovary: Stage grouping for ovarian cancer

FIGO	UICC		
	T	N	M
Ia	T1a	N0	M0
Ib	T1b	N0	M0
Ic	T1c	N0	M0
IIa	T2a	N0	M0
IIb	T2b	N0	M0
IIc	T2c	N0	M0
IIIa	T3a	N0	M0
IIIb	T3b	N0	M0
IIIc	T3c	N0	M0
	any T	N1	M0
IV	any T	any N	M1

DEFINITIONS OF TREATMENTS

Treatment definitions are given in Table 3.

DATA ANALYSIS

Summary and comments

In the present volume 4879 cases of ovarian malignancies (obviously malignant neoplasia and low potential

Table 3
Carcinoma of the ovary: Definitions of treatments

Treatment	Definition
None	No treatment.
Surgery alone	Surgery as first therapy; subsequently, patients can be given any further treatment.
Radiotherapy alone	External radiotherapy and/or intracavitary irradiation as first therapy(ies). No other therapy within 180 days. Subsequently, patients can be given any further treatment.
Neoadjuvant chemotherapy + surgery	Two to four cycles of chemotherapy as first therapy and then surgery within 42 days from the end of chemotherapy. Subsequently, patients can be given any further treatment.
Surgery + adjuvant radiotherapy	Surgery as first therapy and then radiotherapy within 90 days from the date of surgery. Subsequently, patients can be given any further treatment.
Surgery + adjuvant chemotherapy	Surgery as first therapy and then chemotherapy within 90 days from the date of surgery. Subsequently, patients can be given any further treatment.

malignancy) were collected. This is 1121 more than in the previous FIGO Annual Report (1993–1995). This is a positive development and reflects the fact that more centers have decided to contribute to the Annual Report.

Figure 3 shows the distribution by age groups of malignant and borderline cases. Compared to previous volumes the highest incidence is now in the 40–49 age group. The percentage of women younger than 50 years is now 55.9%. This trend was already reported in the previous Annual Report. It is noteworthy that 68.3% of the cases are older than 40 years.

Tables 10 and 11 summarize the number of cases and 5-year survival rates. Survival of all sub-stages is reported in Figure 5.

Tables 9, 10 and 11 summarize the number of cases and 5-year survival rates reported in the volumes 15–25. Survival of the sub-stages is reported in Figure 5. The survival figures show a constant success rate of nearly 90% since 1982. The majority of the borderline cases (56%) are younger than 50 years. The overall survival of borderline cases are strongly influenced by one-third of the cases that have Stage IIb or higher. We also have to take into account the fact that the histologic data on borderline tumors are not always reliable.

The 5-year survival of all malignant cases is now 16% higher than in the period before 1980. This improvement must be due to the introduction of better surgical treatment in combination with cisplatin and the taxanes in the therapy of ovarian cancer. A better survival per sub-stage is due to a redistribution of the cases based on surgical staging. The survival data of the three Stage-III sub-stages did not improve anymore. It seems that the availability of cisplatin and the taxanes has reached its maximum effect in this selected group of patients.

Figure 7 shows that serous cystadenocarcinomas reach their highest peak in Stage III where they account for more than 50% of all serous tumors. Mucinous and endometrioid cystadenocarcinomas tend to occur more frequently in Stage I. The group of serous cystadenocarcinomas is more frequent than all other histotypes combined.

Table 13 reports the treatment data of patients. The vast majority is now treated with surgery and adjuvant chemotherapy. Also in this data set, it is remarkable that in the group with advanced disease 277 patients were treated with surgery alone. The reason for this approach is not known. Maybe it is due to medical reasons. Although radiotherapy is no longer considered as a serious option, still 79 patients are reported to have undergone this treatment.

405 of the 707 patients who were treated with surgery alone were in Stage I, including 72 patients with Stage Ic. This fact was also noted in the previous two volumes and reflects the doubt that exists regarding the usefulness of adjuvant chemotherapy in Stage I.

Figure 8 shows the survival in 1564 Stage I patients by mode of treatment. These figures are similar to the ones in the previous volume and show no statistically significant difference between the two therapeutic approaches.

Figure 11 shows that the number of interval debulking operations is low compared to the number of not optimally debulked patients at primary surgery. It also shows that second look surgery is now only practiced in less than 10% of the patients.

In Figure 12, the survival in 1782 Stage IIIc patients is shown. For the first time we see that the group with no macroscopic disease has even a slightly better survival than the group with no microscopic disease with a hazard ratio down from 0.9 in the previous report to

Table 4
Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients by center and stage

		All	Not available	Stage I	Stage II	Stage III	Stage IV
All centers		5694	224	1949	479	2432	610
Nigeria	Ibadan (I Adewole)	4	1	–	2	1	–
South Africa	Pretoria (G Lindeque)	36	1	6	10	16	3
Argentina	Buenos Aires (R Testa)	32	–	10	3	18	1
	Neuquén (GH Focaccia)	14	–	7	–	7	–
	Santa Fe (A Ellena)	6	–	2	–	3	1
Brazil	Porto Alegre (G Py Gomez da Silveira)	8	–	3	2	3	–
Canada	Montreal (GW Stanimir)	84	7	26	8	33	10
Chile	Santiago (E Suarez)	14	–	5	–	6	3
	Temuco (I Capurro)	19	–	7	–	10	2
Peru	Arequipa (L Medina Fernandez)	8	–	2	1	4	1
USA	Baltimore MA (F Montz, RE Bristow)	75	13	9	2	24	27
	Columbus OH (J Fowler)	104	1	22	7	54	20
	Jacksonville FL (BU Sevin)	59	–	9	3	34	13
	Nashville TN (HW Jones)	87	–	22	7	38	20
	New York NY (R Barakat)	260	15	54	18	143	30
	Orange CA (PJ DiSaia)	56	1	18	3	18	16
Uruguay	Montevideo (G Arribeltz)	10	–	7	–	3	–
China	Hong Kong (HSY Ngan)	143	22	53	22	36	10
	Hong Kong (VSY Yu)	46	1	25	6	12	2
Indonesia	Medan (M Fauzie Sahil)	37	2	10	7	16	2
Israel	Holon (J Menczer)	26	4	5	2	15	–
Japan	Kumamoto (H Okamura)	47	–	25	6	16	–
	Nagasaki (T Ishimaru)	33	–	16	4	12	1
	Osaka (A Suzuki)	58	–	34	3	20	1
	Tokyo (K Kinoshita)	62	–	29	3	24	6
	Sagamihara (H Kuramoto)	77	2	45	11	9	10
Korea	Seoul (HP Lee)	108	7	56	2	38	5
	Seoul (JE Mok)	80	2	43	3	28	4
Philippines	Manila (IB Benitez)	25	–	10	6	9	–
	Manila (AM Manalo)	194	3	112	20	50	9
Thailand	Bangkok (V Linasmita)	151	23	58	11	45	14
	Songkhla (V Wootipoom)	100	2	39	13	36	10
Austria	Graz (R Winter)	158	–	73	8	57	20
	Innsbruck (C Marth)	113	2	42	8	49	12
Croatia	Zagreb (S Jukić)	142	8	41	9	69	15
Czech Republic	Brno (A Dörr)	164	–	46	13	92	13
	Prague (E Kmonícková)	54	8	17	5	16	8
Finland	Jyväskylä (H Sundström)	80	–	24	3	43	10
	Turku (T Salmi)	118	26	34	9	40	9
France	Bordeaux (ML Campo)	39	1	3	3	25	7
	Grenoble (P Bernard)	29	–	10	1	11	7
	Lille (E Leblanc)	48	3	6	1	29	9
Germany	Hannover (H Kühnle)	65	–	14	4	32	15

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Table 4, *continued*

		All	Not available	Stage I	Stage II	Stage III	Stage IV
	Jena (A Schneider)	55	7	7	5	34	2
	Kiel (D Weisner)	103	2	35	6	48	12
	Würzburg (J Dietl)	101	–	31	14	42	14
Greece	Athens (S Michalas)	87	2	15	3	60	7
Italy	Brescia (S Pecorelli)	117	3	43	9	47	15
	Genova (N Ragni)	24	–	6	2	11	5
	Trento (E Arisi)	25	2	5	3	15	–
Portugal	Coimbra (C Freire de Oliveira)	72	5	15	5	40	7
	Coimbra (D Pereira da Silva)	23	–	6	2	12	3
	Coimbra (O Campos)	56	4	22	6	13	11
Romania	Cluj-Napoca (L Lazar, L Neamtiu)	106	1	20	4	66	15
Slovenia	Ljubljana (M Primic Žakelj)	291	2	72	37	147	33
	Maribor (I Takač)	70	5	25	3	14	23
Spain	Barcelona (S Dexeus)	39	1	23	1	13	1
	Barcelona (J Pahisa Fabregas)	77	–	36	2	34	5
	Barcelona (A Gil Moreno)	85	–	27	10	39	9
	Cruces-Baracaldo (FJ Rodríguez Escudero)	90	–	35	12	37	6
	Las Palmas de Gran Canaria (O Falcón Vizcaino)	72	–	46	3	22	1
	Madrid (F Calero Cuerda)	88	–	35	6	40	7
	Madrid (P de La Fuente)	40	–	16	7	15	2
Sweden	Ghotenburg (G Horvath)	438	7	119	56	208	48
	Örebro (B Sorbe)	289	1	120	16	126	26
Switzerland	Basel (W Holzgreve)	10	–	4	3	3	–
Yugoslavia	Niš (Z Stanojević)	63	17	17	2	24	3
Australia	Carlton (M Quinn)	200	10	90	13	78	9

0.6 in this analysis. In fact, the data show that patients with no residual disease have the best survival. Also within the group with macroscopic residual disease, there is a striking difference in survival between the ones with residual disease <2 cm and the ones with residual tumor >2 cm. Both results are arguments to improve the outcome of the primary and interval debulking operations.

CONCLUSIONS

Data analysis allows the following conclusions:

- The overall survival of ovarian cancer patients has stabilized.
- Radiotherapy is no longer a therapeutic option in the vast majority of the contributing centers.
- The number of interval debulking operations is small in relation to the high number of patients that were not optimally debulked after the first operation.
- Similar to the previous report, second look surgery and salvage surgery are not practiced very much anymore.

Since surgery still is equally important to chemotherapy much more effort has to be put into achieving an optimal outcome of the debulking operation. This is an extra argument to have the operation performed by a specially trained gynecologist or a gynecologic oncologist.

It seems there is a stand still in the results of ovarian cancer treatment. New treatment strategies, probably in combination with chemotherapy, might be of help to further improve the results of treatment of this still deadly disease.

Table 5
Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage I), $n = 1949$

Country	Number of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	1949	0	51	0	0	1	40	7
South Africa	6	–	83	–	–	–	17	–
Argentina	19	–	79	–	–	–	21	–
Brazil	3	–	100	–	–	–	–	–
Canada	26	–	81	–	–	–	19	–
Chile	12	–	67	–	–	8	25	–
Peru	2	–	100	–	–	–	–	–
USA	134	1	60	–	–	1	37	1
Uruguay	7	–	71	–	–	–	29	–
China	78	–	54	–	–	4	42	–
Indonesia	10	–	30	–	–	10	60	–
Israel	5	–	80	–	–	–	20	–
Japan	149	–	50	–	1	2	47	1
Korea	99	1	55	–	1	–	42	1
Philippines	122	–	63	–	1	1	35	–
Thailand	97	–	45	–	–	1	54	–
Austria	115	–	65	–	–	–	35	–
Croatia	41	–	2	–	–	2	95	–
Czech Republic	63	–	11	–	–	2	87	–
Finland	58	–	45	–	–	2	53	–
France	19	–	63	–	–	–	37	–
Germany	87	–	71	–	–	3	25	–
Greece	15	–	20	–	–	–	80	–
Italy	54	–	72	–	–	–	26	2
Portugal	43	2	53	–	2	5	37	–
Romania	20	–	40	–	–	–	60	–
Slovenia	97	–	41	–	1	4	53	1
Spain	218	–	62	–	–	0	37	–
Sweden	239	–	24	0	–	–	26	49
Switzerland	4	–	25	–	–	–	75	–
Yugoslavia	17	–	–	–	–	12	88	–
Australia	90	1	67	–	–	1	14	17

Table 6
Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage II), $n = 479$

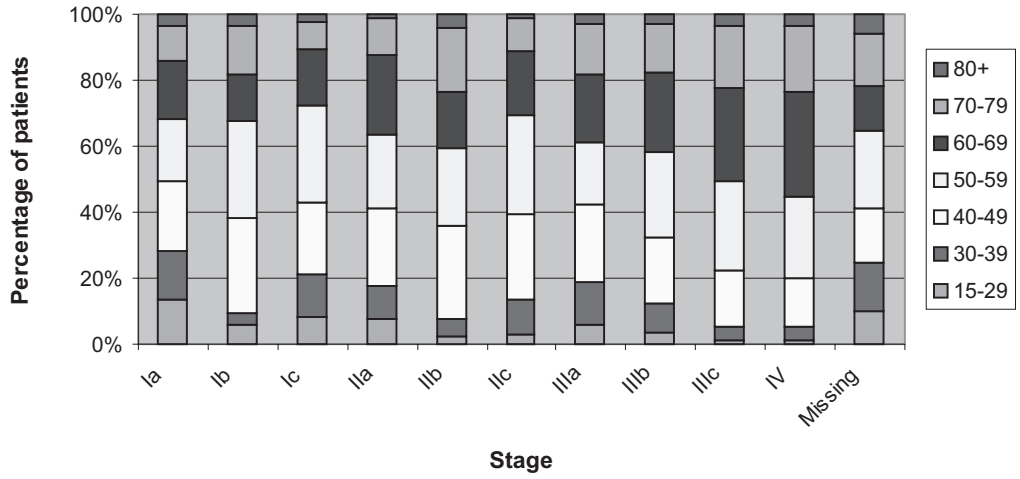
Country	Number of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	479	0	11	–	2	4	70	13
Nigeria	2	–	–	–	–	100	–	–
South Africa	10	–	30	–	–	–	70	–
Argentina	3	–	33	–	–	–	67	–
Brazil	2	–	–	–	–	–	100	–
Canada	8	–	25	–	–	–	75	–
Peru	1	–	100	–	–	–	–	–
USA	40	–	28	–	–	–	70	3
China	28	–	7	–	7	–	86	–
Indonesia	7	–	29	–	–	–	71	–
Israel	2	–	–	–	–	–	100	–
Japan	27	–	–	–	–	–	100	–
Korea	5	–	–	–	–	–	100	–
Philippines	26	–	31	–	–	12	58	–
Thailand	24	–	–	–	8	–	92	–
Austria	16	–	13	–	–	–	88	–
Croatia	9	–	–	–	–	–	89	11
Czech Republic	18	–	11	–	–	6	83	–
Finland	12	–	17	–	–	–	83	–
France	5	–	–	–	–	40	60	–
Germany	29	7	17	–	–	3	72	–
Greece	3	–	–	–	–	–	100	–
Italy	14	–	14	–	–	21	64	–
Portugal	13	–	–	–	8	8	77	8
Romania	4	–	–	–	–	–	100	–
Slovenia	40	–	8	–	5	8	80	–
Spain	41	–	5	–	2	–	93	–
Sweden	72	–	3	–	–	–	19	78
Switzerland	3	–	33	–	–	–	33	33
Yugoslavia	2	–	–	–	–	–	100	–
Australia	13	–	8	–	–	38	46	8

Table 7
Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage III), $n = 2432$

Country	Number of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	2432	1	9	0	4	1	74	11
Nigeria	1	–	–	–	–	100	–	–
South Africa	16	–	13	–	–	–	81	6
Argentina	28	–	11	–	–	–	82	7
Brazil	3	–	33	–	–	–	67	–
Canada	33	3	12	–	–	–	73	12
Chile	16	–	19	–	6	31	44	–
Peru	4	–	50	25	–	–	25	–
USA	311	1	14	–	1	–	82	2
Uruguay	3	–	67	–	–	–	33	–
China	48	–	10	–	13	–	77	–
Indonesia	16	–	13	–	–	–	88	–
Israel	15	–	7	–	–	–	93	–
Japan	81	–	4	–	6	1	89	–
Korea	66	–	11	–	3	2	85	–
Philippines	59	–	37	–	–	7	56	–
Thailand	81	–	5	–	–	–	94	1
Austria	106	–	13	–	–	–	86	1
Croatia	69	1	3	–	6	–	86	4
Czech Republic	108	–	–	–	4	1	94	2
Finland	83	–	11	–	–	–	89	–
France	65	2	5	–	26	2	58	8
Germany	156	–	13	–	2	5	77	2
Greece	60	–	–	–	–	–	98	2
Italy	73	–	3	–	18	–	71	8
Portugal	65	2	11	–	6	3	78	–
Romania	66	–	15	–	12	–	67	6
Slovenia	161	1	2	–	13	2	80	2
Spain	200	1	12	–	5	1	80	2
Sweden	334	1	5	–	–	–	32	62
Switzerland	3	33	–	–	33	–	33	–
Yugoslavia	24	–	–	–	–	–	100	–
Australia	78	–	6	–	–	1	77	15

Table 8
Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage IV), $n = 610$

Country	Number of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	610	3	10	–	6	1	63	17
South Africa	3	33	–	–	–	–	67	–
Argentina	2	–	50	–	50	–	–	–
Canada	10	20	20	–	–	–	40	20
Chile	5	–	40	–	20	40	–	–
Peru	1	–	–	–	–	–	100	–
USA	126	3	13	–	2	–	75	7
China	12	8	–	–	33	–	58	–
Indonesia	2	–	50	–	–	–	50	–
Japan	18	–	6	–	6	–	83	6
Korea	9	–	11	–	11	–	67	11
Philippines	9	–	56	–	–	–	44	–
Thailand	24	–	4	–	4	–	92	–
Austria	32	6	–	–	–	–	91	3
Croatia	15	–	–	–	7	–	53	40
Czech Republic	21	–	–	–	–	–	71	29
Finland	19	–	21	–	–	–	79	–
France	23	4	4	–	35	–	35	22
Germany	43	12	5	–	–	7	70	7
Greece	7	–	–	–	–	–	100	–
Italy	20	–	10	–	–	–	85	5
Portugal	21	10	33	–	10	–	48	–
Romania	15	–	13	–	7	–	60	20
Slovenia	56	5	11	–	13	2	59	11
Spain	31	–	19	–	13	–	55	13
Sweden	74	–	4	–	–	–	31	65
Yugoslavia	3	–	–	–	–	–	100	–
Australia	9	–	11	–	–	–	33	56



Age group	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
15–29	311	23	143	6	65	7	3	8	10	12	28	6
30–39	486	32	159	4	101	9	8	26	21	28	71	27
40–49	1113	37	224	30	168	21	40	64	39	65	336	89
50–59	1435	53	203	31	229	20	33	74	32	85	524	151
60–69	1310	30	189	15	129	22	24	48	34	78	548	193
70–79	848	36	113	15	63	10	27	25	25	48	365	121
80+	191	13	38	4	20	1	6	3	5	9	69	23

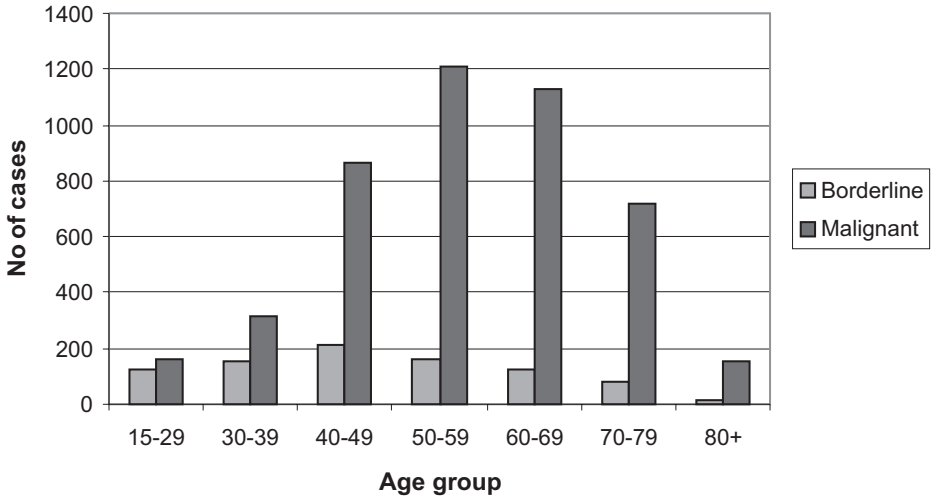
Fig. 2. Carcinoma of the ovary: patients treated in 1996–98. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and age groups.

Table 9
Carcinoma of the ovary: patients treated in 1996–98. Epithelial ovarian carcinoma of low malignant potential (borderline). Review of the 5-year survival rates reported in volumes 15–25

Vol.	Year	Patients (*n*)	Overall 5-yr survival (%), Stage Ia–IV
15	1958–62	451	67.2
16	1963–68	385	73.8
17	1969–72	403	73.4
18	1973–75	304	78.6
19	1976–78	371	78.7
20	1979–81	542	77.5
21	1982–86	725	89.1
22	1987–89	487	93.0
23	1990–92	302	86.2
24	1993–95	549	87.6
25	**1996–98**	**763**	**90.4**
Total		**5282**	

Table 10
Carcinoma of the ovary: patients treated in 1996–98. Number of patients and 5-years survival rate by histology

	Borderline		Malignant	
	Patients (*n*)	5-year survival	Patients (*n*)	5-year survival
All subjects	763	91.4	4116	46.4

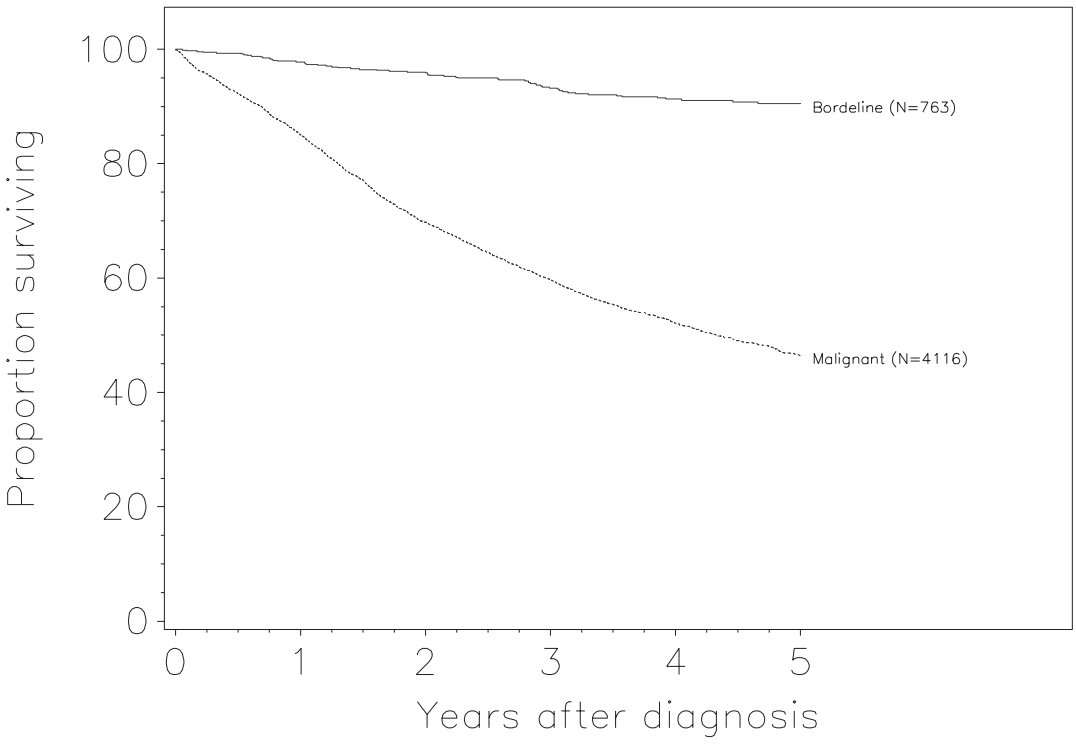


Age group	Borderline		Malignant	
	Patients (*n*)	Percentage (%)	Patients (*n*)	Percentage (%)
15–29	124	14.3	164	3.6
30–39	151	17.4	316	6.9
40–49	210	24.2	863	18.9
50–59	164	18.9	1213	26.6
60–69	127	14.6	1128	24.7
70–79	78	9.0	720	15.8
80+	14	1.6	156	3.4
Total	868	100.0	4560	100.0

Fig. 3. Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients by malignant and borderline cases and age groups.

Table 11
Carcinoma of the ovary: patients treated in 1996–98. Epithelial ovarian cancer (obviously malignant cases). Five-year survival by stage

Vol.	Year	Cases (*n*)	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV	Overall %
15	1958–62	2320	60.7	(Ib–IIa) 42.0			31.6		(IIIa–IIIc) 6.9			2.6	26.8
16	1963–68	4588	66.7	51.9		49.7	(IIb–IIc) 38.0		(IIIa–IIIc) 8.6			5.0	27.3
17	1969–72	4892	72.0	62.5	57.4	52.2	(IIb–IIc) 37.5		(IIIa–IIIc) 10.8			4.6	30.1
18	1973–75	5268	69.7	63.9	50.3	51.8	(IIb–IIc) 42.2		(IIIa–IIIc) 13.3			4.1	30.5
19	1976–78	6724	72.3	56.1	58.1	47.7	(IIb–IIc) 42.1		(IIIa–IIIc) 13.5			4.5	29.8
20	1979–81	8082	76.6	67.7	59.6	51.1	(IIb–IIc) 43.5		(IIIa–IIIc) 17.4			4.7	30.9
21	1982–86	10912	82.3	74.9	67.7	60.6	(IIb–IIc) 53.8		(IIIa–IIIc) 22.7			8.0	35.0
22	1987–89	2942	83.5	79.3	73.1	64.6	(IIb–IIc) 58.0		(IIIa–IIIc) 22.9			14.3	39.1
23	1990–92	7059	83.5	71.3	79.2	66.6	55.1	57.0	41.1	24.9	23.4	11.1	41.6
24	1993–95	3409	89.9	84.7	80.0	69.9	63.7	66.5	58.5	39.9	28.7	16.8	48.4
25	**1996–98**	**4116**	**89.3**	**64.8**	**78.2**	**79.2**	**64.3**	**68.2**	**49.2**	**40.8**	**28.9**	**13.4**	**46.4**
Total		**60312**											



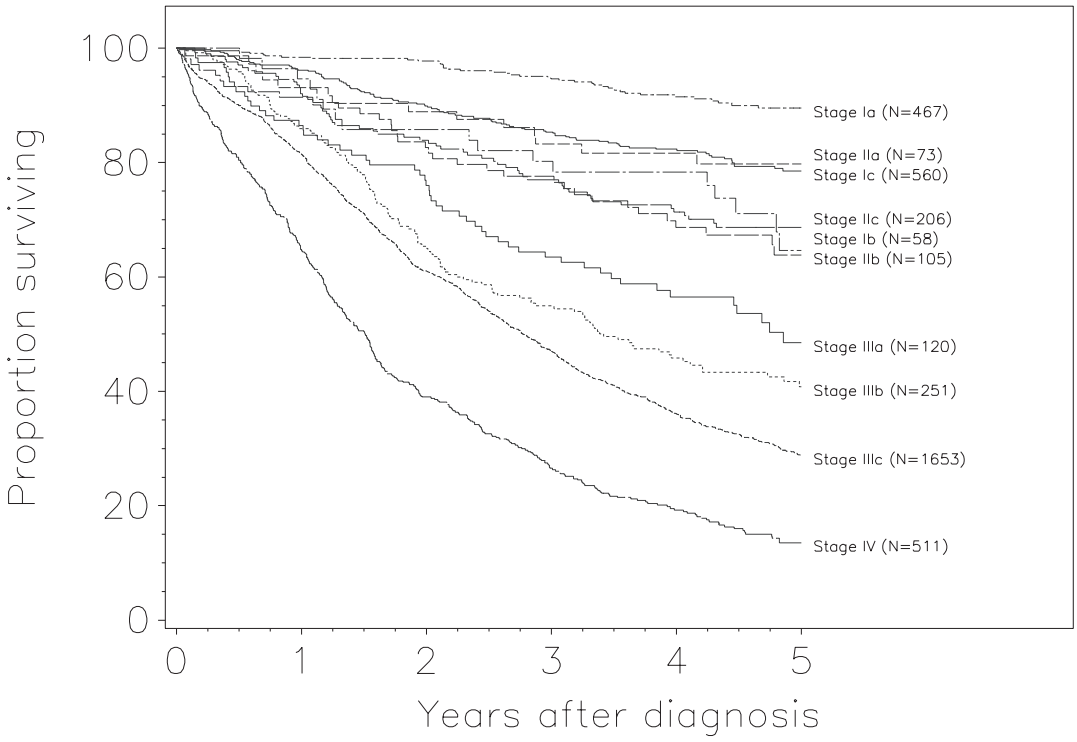
Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Bordeline	763	48.6	97.8	95.9	93.3	91.2	90.4	Reference
Malignant	4116	57.5	85.0	69.8	59.7	51.9	46.4	2.9 (2.2–3.8)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

Fig. 4. Carcinoma of the ovary: patients treated in 1996–98. Survival by histology, $n = 4879$.

Table 12
Carcinoma of the ovary: patients treated in 1996–98. Five-year survival by stage

Stage	All tumors		Low malignancy		Obviously malignant	
	Patients (*n*)	5-year survival	Patients (*n*)	5-year survival	Patients (*n*)	5-year survival
Ia	906	91.7	403	94.6	467	89.3
Ib	94	76.0	34	100.0	58	64.8
Ic	709	81.2	124	94.6	560	78.2
IIa	77	78.8	1	100.0	73	79.2
IIb	122	64.0	11	100.0	105	64.3
IIc	224	69.5	14	92.6	206	68.2
IIIa	153	57.0	29	89.3	120	49.2
IIIb	278	43.8	18	88.4	251	40.8
IIIc	1782	30.2	62	59.6	1653	28.9
IV	550	13.7	9	63.7	511	13.4



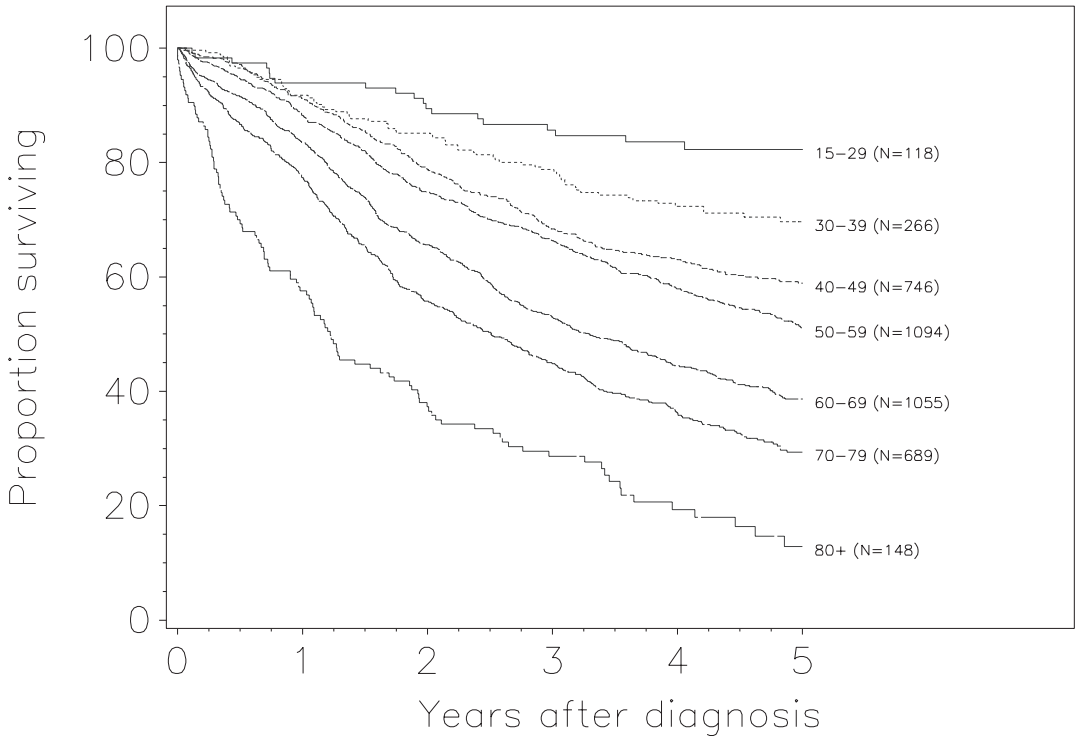
Stage	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Ia	467	53.8	98.5	97.8	94.6	91.4	89.3	Reference
Ib	58	54.7	94.7	85.8	80.3	78.3	64.8	3.5 (2.0–6.1)
Ic	560	53.0	96.2	89.9	85.3	82.1	78.2	2.6 (1.8–3.7)
IIa	73	55.8	93.1	88.9	83.2	81.6	79.2	2.5 (1.4–4.5)
IIb	105	57.5	91.4	82.7	77.6	68.7	64.3	4.3 (2.8–6.8)
IIc	206	54.5	92.1	83.9	76.9	71.2	68.2	4.4 (3.0–6.6)
IIIa	120	56.0	86.6	76.1	63.5	56.4	49.2	6.8 (4.5–10.2)
IIIb	251	58.0	86.1	65.5	55.0	45.7	40.8	8.6 (6.0–12.3)
IIIc	1653	59.8	81.5	61.1	47.0	36.0	28.9	11.8 (8.6–16.2)
IV	511	60.6	64.7	39.3	26.8	19.2	13.4	22.0 (15.9–30.6)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age and country.

Fig. 5. Carcinoma of the ovary: patients treated in 1996–98. Survival by FIGO stage, obviously malignant, $n = 4004$.

Table 13
Carcinoma of the ovary: patients treated in 1996–98. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and mode of treatment

Treatment	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
No treatment	34	3	2	0	0	0	0	0	1	0	11	17
Surgery alone	707	18	313	20	72	7	12	17	16	19	153	60
RT alone	1	0	1	0	0	0	0	0	0	0	0	0
Neoadj CT + surgery	140	4	0	1	1	1	2	5	4	10	79	33
Surgery + adj RT	78	2	9	2	12	4	6	7	3	3	24	6
Surgery + adj CT	3126	80	179	36	491	58	70	185	94	230	1338	365
Other non-standard	474	13	46	9	38	13	29	13	14	30	188	81



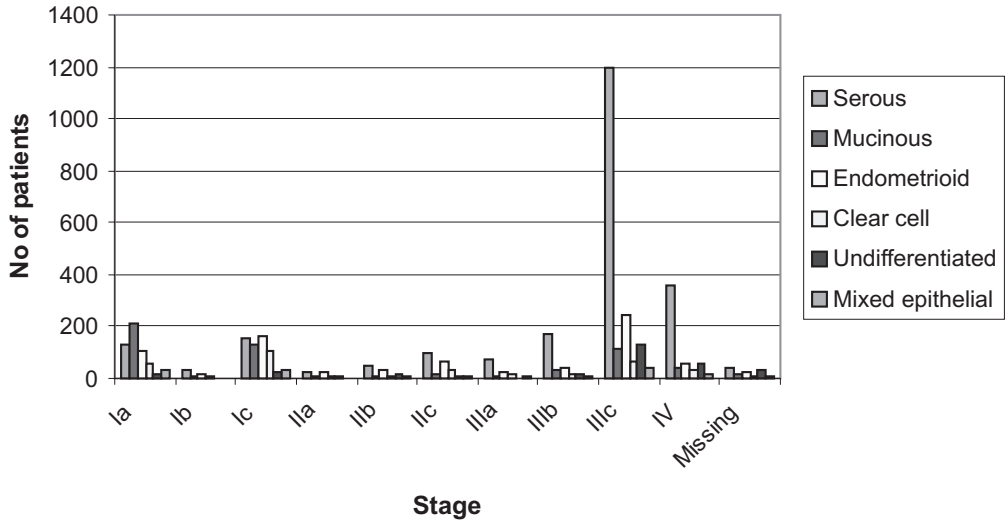
Age group	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
15–29	118	24.2	94.0	89.5	85.8	83.5	81.9	0.7 (0.4–1.1)
30–39	266	35.4	91.8	85.2	78.8	72.1	69.5	0.8 (0.6–1.0)
40–49	746	45.1	91.2	78.9	68.4	62.9	58.6	0.9 (0.8–1.1)
50–59	1094	54.5	88.3	75.0	66.4	57.8	51.1	Reference
60–69	1055	64.4	83.5	65.6	52.9	44.3	38.4	1.3 (1.2–1.5)
70–79	689	73.7	77.4	55.9	45.0	36.2	29.4	1.9 (1.6–2.1)
80+	148	83.5	57.4	37.0	28.2	20.0	13.8	4.1 (3.3–5.0)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for stage and country.

Fig. 6. Carcinoma of the ovary: patients treated in 1996–98. Survival by age, obviously malignant, $n = 4116$.

Table 14
Carcinoma of the ovary: patients treated in 1996–98. Response to treatment by stage

Response	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Missing	1816	89	400	37	238	28	51	72	51	88	582	180
Complete response	2353	74	608	56	465	41	66	139	73	132	609	90
Partial response	394	9	5	4	8	8	3	10	5	35	236	71
Stable disease	277	17	8	0	8	2	6	5	9	18	127	77
Progressive disease	553	23	4	1	23	5	7	14	17	28	286	145
Not assessable	301	12	44	7	33	6	8	8	11	24	101	47

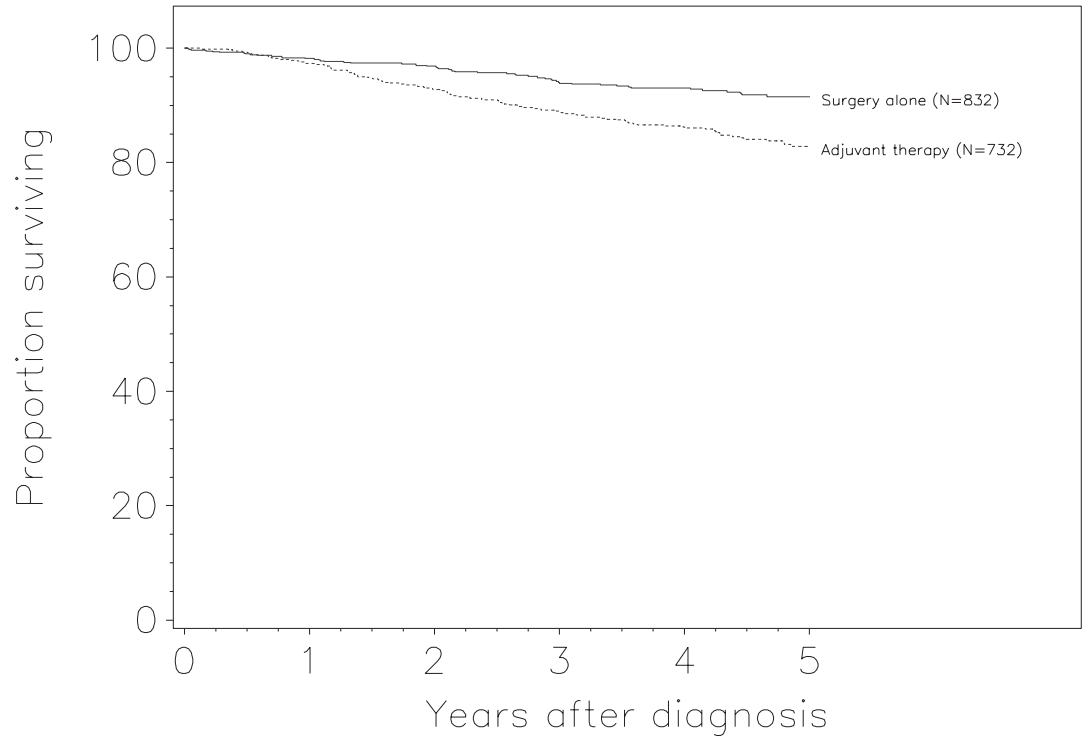


Histology	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Serous	2322	41	129	32	152	26	49	96	73	172	1196	356
Mucinous	600	14	211	8	134	8	9	18	10	31	118	39
Endometrioid	802	21	105	17	164	28	33	62	25	43	243	61
Clear cell	349	8	55	5	105	12	6	32	13	19	64	30
Undifferentiated	316	31	18	4	24	5	17	8	4	19	128	58
Mixed epithelial	171	5	32	2	35	4	5	11	7	8	44	18

Fig. 7. Carcinoma of the ovary: patients treated in 1996–98. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and histologic type.

Table 15
Carcinoma of the Ovary: patients treated in 1996–98. Relapses by stage

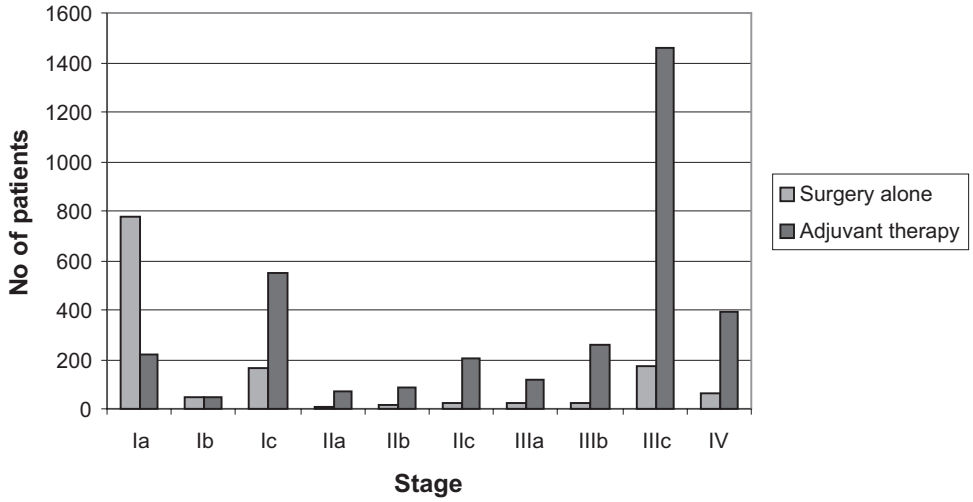
Site of relapse	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Local (regional)	446	9	12	5	34	4	8	19	10	41	261	43
Metastatic	253	11	7	0	18	3	7	15	12	31	122	27
Local and metastatic	215	2	3	0	19	3	4	6	6	18	123	31
Missing site	1833	61	591	55	402	39	50	109	50	77	339	60
Total	2747	83	613	60	473	49	69	149	78	167	845	161



Treatment	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Surgery alone	832	50.6	98.2	96.9	93.9	93.0	91.4	Reference
Adjuvant therapy	732	51.7	97.4	92.7	89.0	86.1	82.6	1.6 (1.0–2.3)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

Fig. 8. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I patients by mode of treatment, $n = 1564$.



		All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Surgery alone	Patients (*n*)	1396	70	774	50	164	8	19	25	23	23	176	64
	Mean age	52.2	47.8	49.2	56.0	49.8	51.9	58.2	50.6	53.5	57.8	64.0	60.0
Adjuvant therapy	Patients (*n*)	3488	101	217	44	552	67	85	204	117	256	1456	389
	Mean age	55.5	51.0	51.2	51.0	50.9	52.5	55.6	52.8	53.2	54.9	58.1	59.1

Fig. 9. Carcinoma of the ovary: patients treated in 1996–98. Distribution of patients and age at diagnosis by mode of treatment and stage.

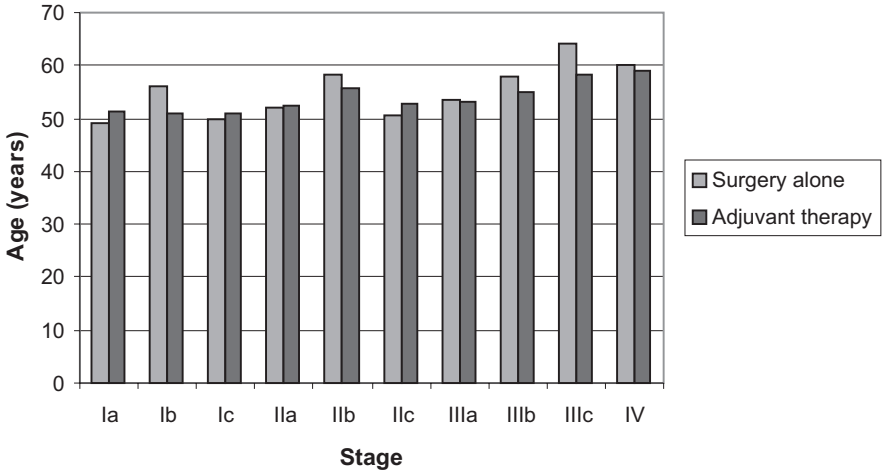
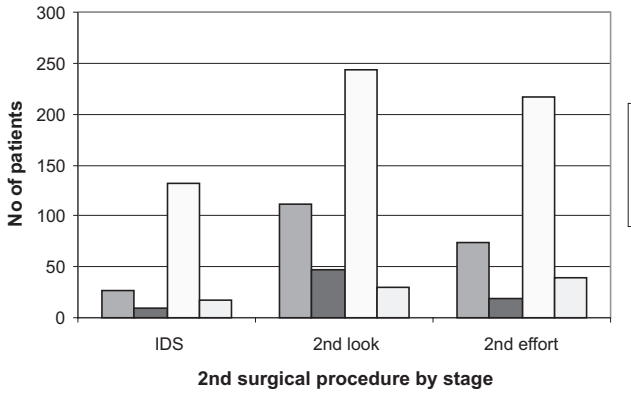


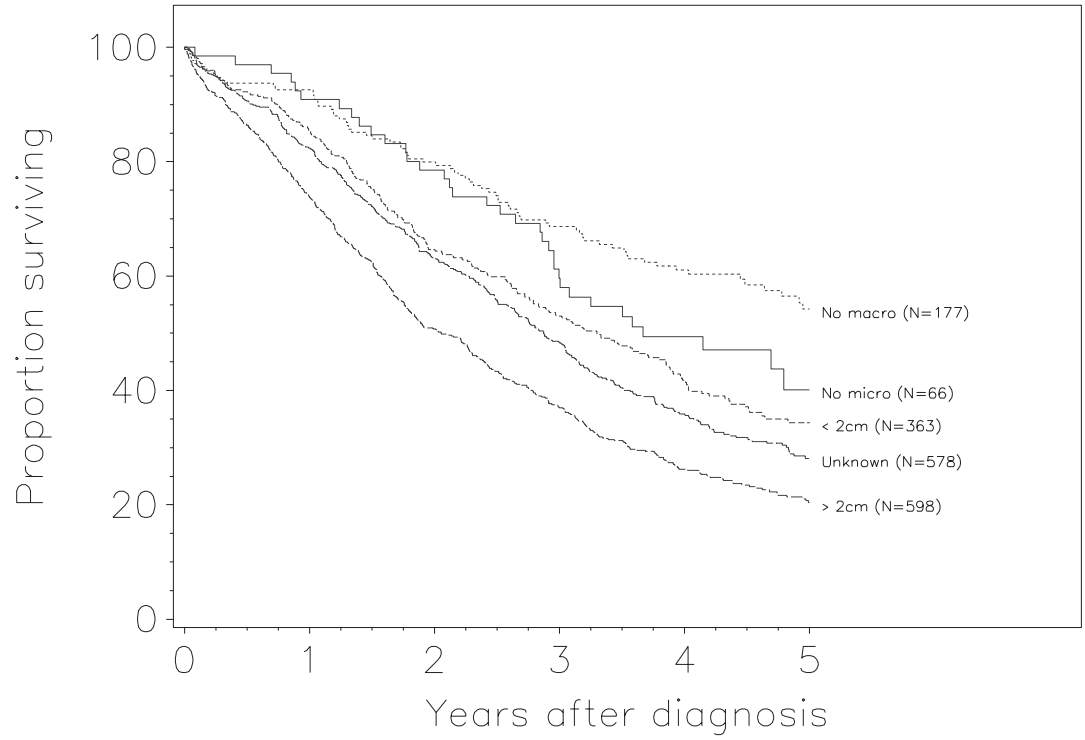
Fig. 10. Carcinoma of the ovary: patients treated in 1996–98. Age of patients at diagnosis by mode of treatment and stage.



	All	Missing	Stage			
			I	II	III	IV
Missing	4704	200	1737	403	1840	524
IDS[a]	197	12	26	10	132	17
2nd look	439	6	112	47	244	30
2nd effort	354	6	74	19	216	39
All	5694	224	1949	479	2432	610

[a] IDS, Interval Debulking Surgery.

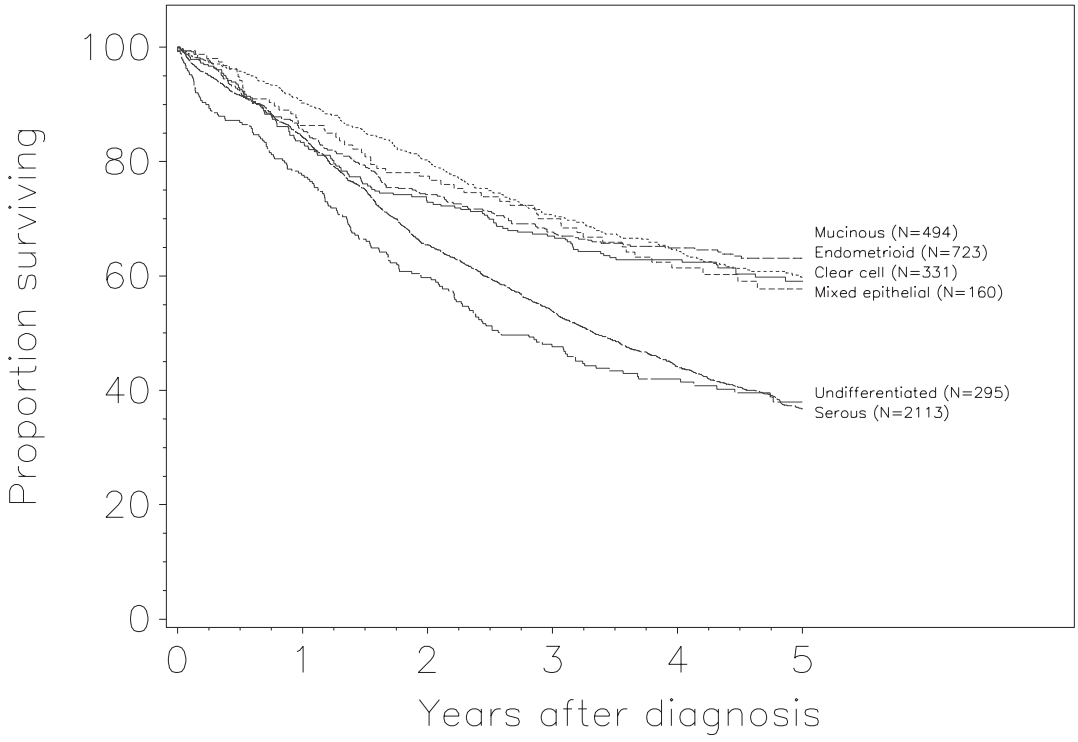
Fig. 11. Carcinoma of the ovary: patients treated in 1996–98. Type of second surgical procedure by stage.



Residual disease	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
No micro residual	66	57.5	90.8	78.5	59.7	49.0	41.3	Reference
No macro residual	177	58.2	92.6	80.0	68.7	61.0	55.1	0.6 (0.4–0.9)
<2 cm	363	57.8	85.3	64.7	53.0	41.4	34.0	1.1 (0.8–1.7)
>2 cm	598	61.2	73.9	50.7	36.9	26.2	20.7	1.8 (1.2–2.5)
Unknown	578	60.3	82.4	63.1	48.4	35.6	28.1	1.2 (0.9–1.7)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

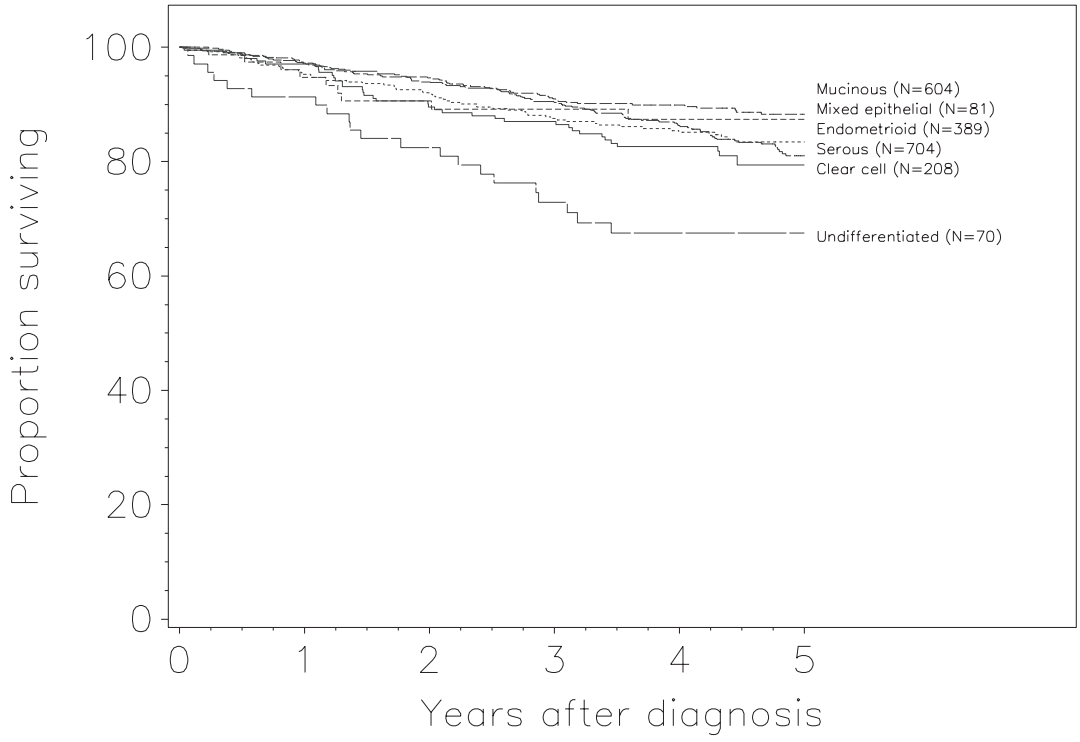
Fig. 12. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage IIIc patients by completeness of surgery, $n = 1782$.



Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Serous	2113	59.3	84.3	65.5	53.8	44.0	36.9	Reference
Mucinous	494	53.9	85.5	74.2	67.7	64.7	62.8	1.3 (1.1–1.5)
Endometrioid	723	55.5	90.3	80.4	70.7	64.2	59.6	0.9 (0.8–1.1)
Clear cell	331	55.3	83.4	72.9	67.0	62.5	58.8	1.3 (1.1–1.6)
Undifferentiated	295	60.4	77.7	59.6	47.4	41.4	37.2	1.1 (1.0–1.3)
Mixed epithelial	160	52.4	86.4	77.4	70.0	61.3	57.4	0.9 (0.7–1.2)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

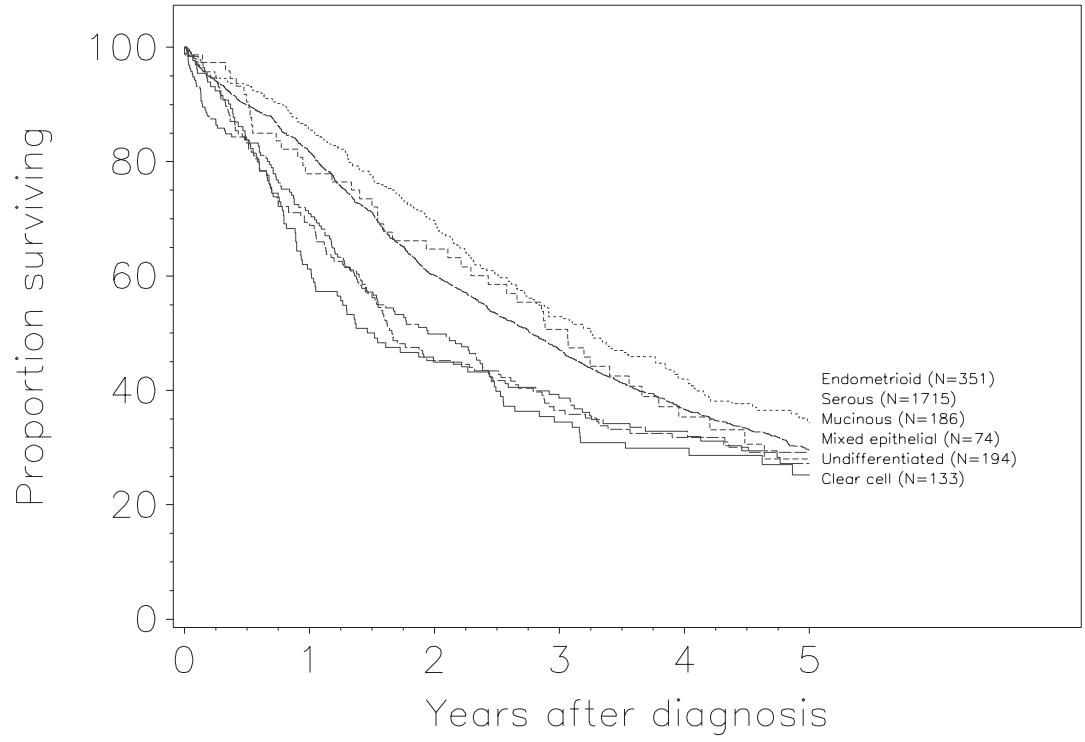
Fig. 13. Carcinoma of the ovary: patients treated in 1996–98. Survival by histologic type, obviously malignant, $n = 4116$.



Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Serous	704	53.4	97.2	94.0	90.4	86.3	80.9	Reference
Mucinous	604	49.1	97.2	94.7	91.0	89.8	88.1	1.3 (0.9–1.8)
Endometrioid	389	54.1	95.3	92.0	87.6	85.1	83.3	1.4 (1.0–1.9)
Clear cell	208	53.9	97.1	89.6	87.0	82.3	79.0	1.4 (1.0–2.1)
Undifferentiated	70	57.1	91.4	82.5	72.8	66.7	66.7	2.1 (1.3–3.4)
Mixed epithelial	81	48.2	94.8	90.7	89.2	87.3	87.3	1.2 (0.6–2.4)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

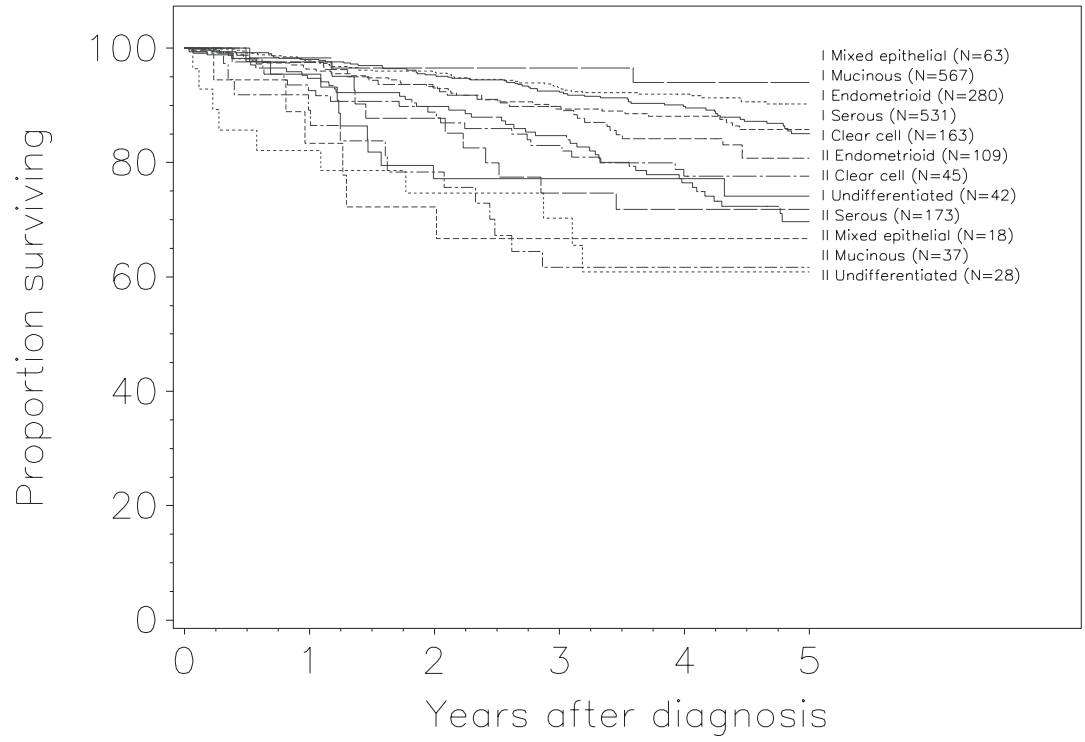
Fig. 14. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I–II patients by histologic type, $n = 2056$.



Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Serous	1715	59.6	81.7	60.2	47.1	36.6	29.8	Reference
Mucinous	186	60.0	68.8	45.3	36.6	31.7	28.9	1.3 (1.1–1.6)
Endometrioid	351	57.0	85.5	69.9	53.0	42.1	34.5	0.9 (0.8–1.1)
Clear cell	133	58.0	61.7	45.3	34.8	29.6	24.9	1.6 (1.3–1.9)
Undifferentiated	194	61.7	71.0	49.7	38.4	32.2	26.3	1.1 (0.9–1.3)
Mixed epithelial	74	57.9	77.8	64.4	50.5	35.3	28.3	1.0 (0.7–1.3)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

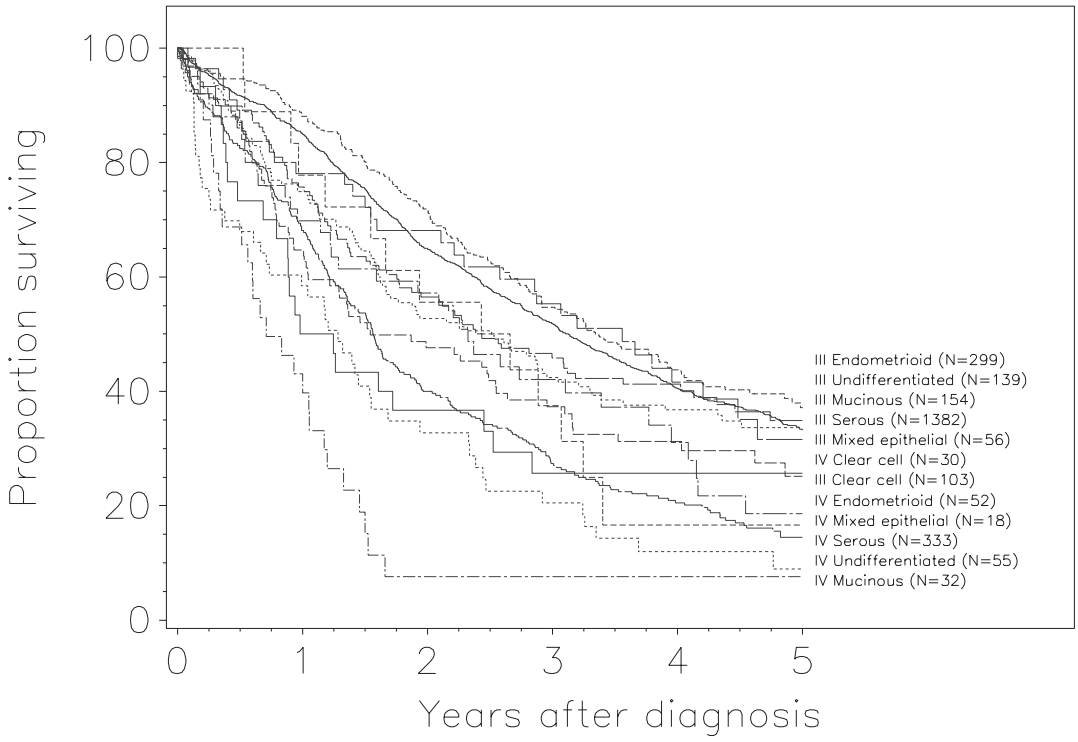
Fig. 15. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage III–IV patients by histologic type, $n = 2653$.



Stage/Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
I Serous	531	52.7	98.0	95.4	92.3	89.8	85.0	Reference
I Mucinous	567	48.8	97.8	95.8	93.1	91.9	90.1	1.1 (0.8–1.7)
I Endometrioid	280	54.4	96.3	93.3	89.4	88.1	85.4	1.4 (0.9–2.1)
I Clear cell	163	53.9	97.5	93.0	89.7	83.7	80.4	1.4 (0.9–2.3)
I Undifferentiated	42	52.9	97.6	87.7	74.6	71.2	71.2	2.9 (1.5–5.7)
I Mixed epithelial	63	47.0	98.3	96.5	96.5	94.0	94.0	0.7 (0.2–2.2)
II Serous	173	55.6	94.7	89.8	84.7	76.3	69.5	5.5 (3.4–8.9)
II Mucinous	37	53.1	89.2	78.4	61.6	61.6	61.6	9.9 (5.0–19.6)
II Endometrioid	109	53.3	92.6	88.8	83.0	77.6	77.6	7.1 (4.0–12.5)
II Clear cell	45	53.8	95.5	77.1	77.1	77.1	73.7	7.5 (3.9–14.6)
II Undifferentiated	28	63.5	82.1	74.7	70.4	60.3	60.3	8.4 (3.8–18.5)
II Mixed epithelial	18	52.6	83.3	72.2	66.7	66.7	66.7	10.0 (3.9–25.1)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

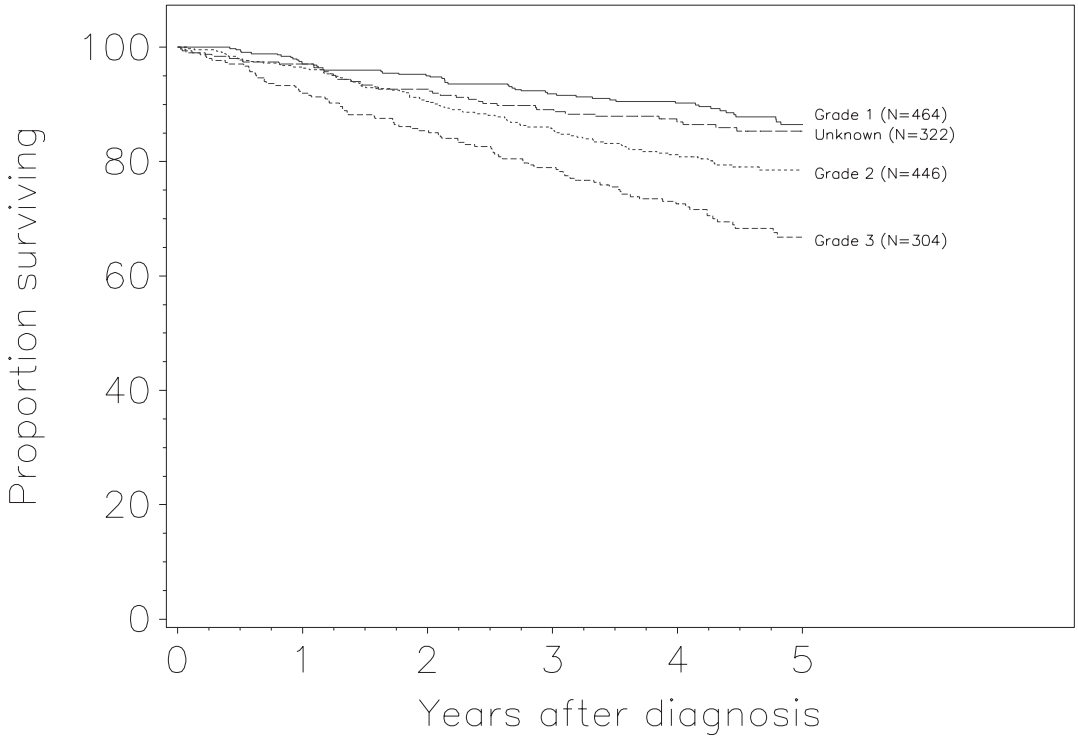
Fig. 16. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I–II patients by stage and histologic type, $n = 2056$.



Stage/Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
III Serous	1382	59.3	85.0	64.9	51.7	40.3	33.5	Reference
III Mucinous	154	59.4	74.8	52.8	42.4	36.7	33.3	1.2 (0.9–1.4)
III Endometrioid	299	57.1	88.2	72.0	54.8	43.9	37.4	0.9 (0.8–1.1)
III Clear cell	103	58.3	65.2	47.9	37.4	30.6	24.5	1.8 (1.4–2.4)
III Undifferentiated	139	61.2	75.7	56.3	45.5	40.6	33.5	1.1 (0.8–1.3)
III Mixed epithelial	56	58.8	77.8	67.7	55.0	41.5	32.3	1.0 (0.7–1.5)
IV Serous	333	61.1	68.1	40.3	27.6	20.5	14.3	4.1 (3.0–5.5)
IV Mucinous	32	62.7	39.7	8.6	8.6	8.6	8.6	8.3 (5.3–13.1)
IV Endometrioid	52	56.8	70.3	57.7	42.2	31.6	17.6	3.1 (2.0–4.7)
IV Clear cell	30	56.9	50.0	36.7	26.2	26.2	26.2	4.2 (2.6–6.9)
IV Undifferentiated	55	63.1	58.9	32.9	20.6	11.4	8.6	4.7 (3.2–7.0)
IV Mixed epithelial	18	55.1	77.8	55.6	38.0	17.3	17.3	3.6 (2.0–6.5)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

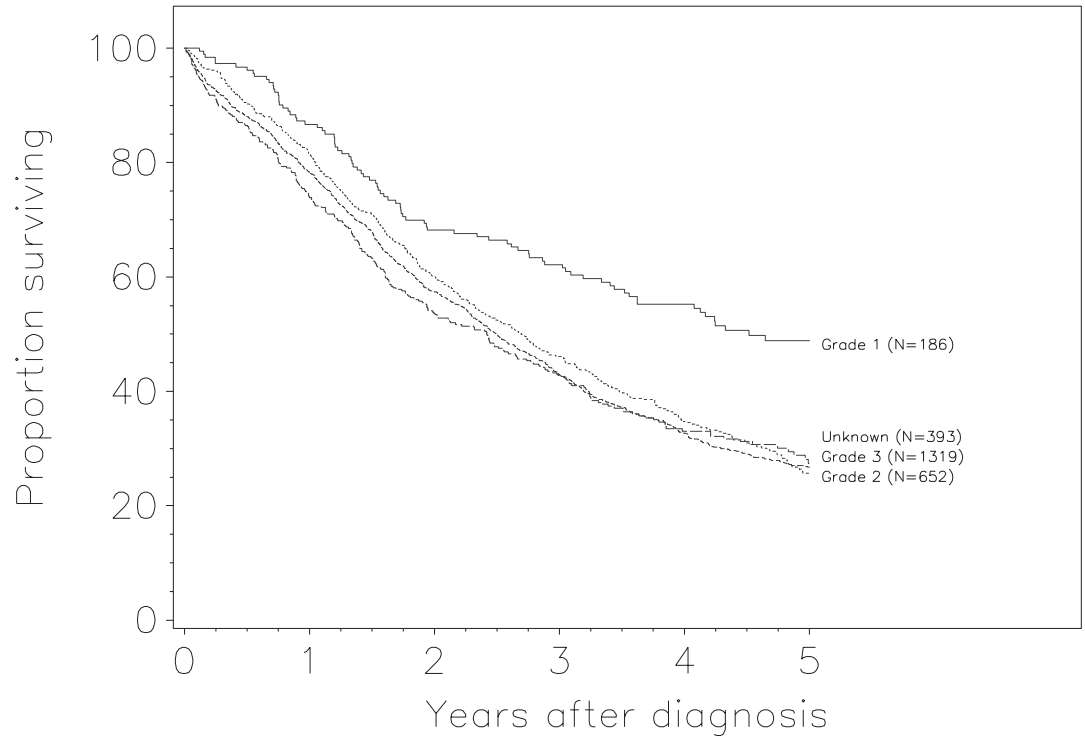
Fig. 17. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage III–IV patients by stage and histologic type, $n = 2653$.



Grade	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Grade 1	464	51.9	97.1	95.0	91.9	90.2	86.3	Reference
Grade 2	446	54.4	96.5	90.6	85.6	81.0	78.2	1.6 (1.1–2.3)
Grade 3	304	58.1	92.0	85.4	78.9	72.3	66.2	1.8 (1.3–2.7)
Grade unknown	322	50.4	97.1	92.6	89.0	86.9	85.2	1.2 (0.8–1.8)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

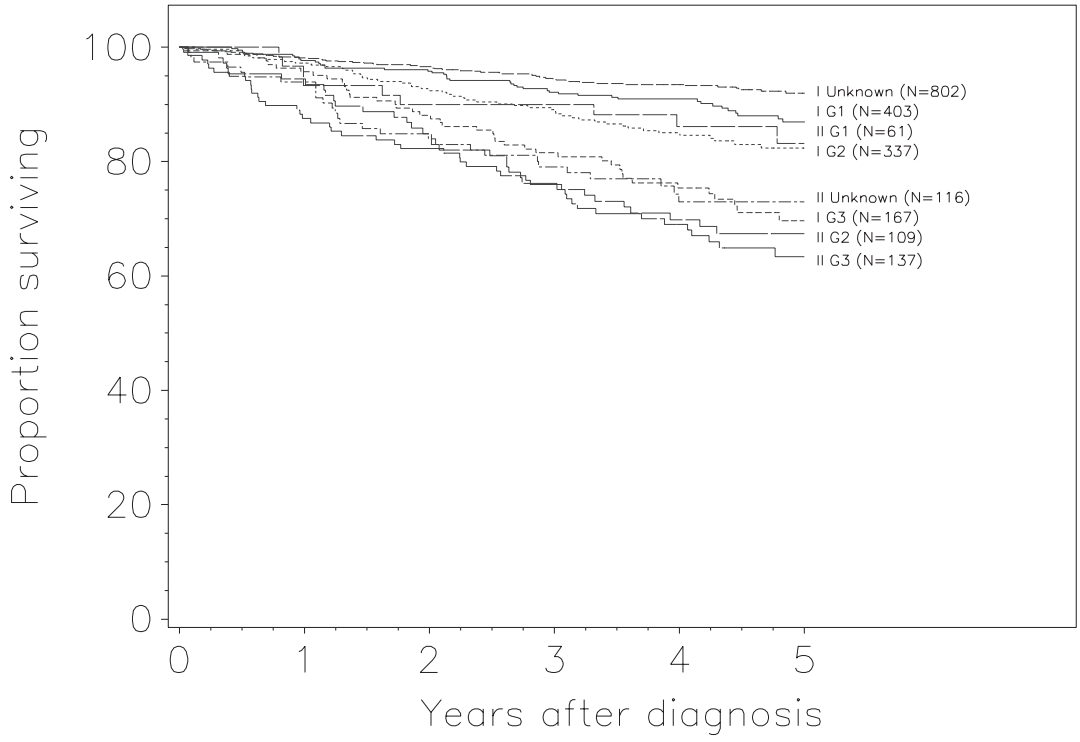
Fig. 18. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I–II patients by grade of differentiation, $n = 1536$.



Grade	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Grade 1	186	55.8	86.8	68.4	62.4	55.2	48.6	Reference
Grade 2	652	59.6	81.6	60.2	46.1	34.7	26.3	1.6 (1.3–2.1)
Grade 3	1319	60.8	78.3	57.4	42.9	32.5	26.6	1.6 (1.3–2.0)
Grade unknown	393	58.3	73.9	53.9	42.8	33.1	28.0	1.8 (1.4–2.3)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

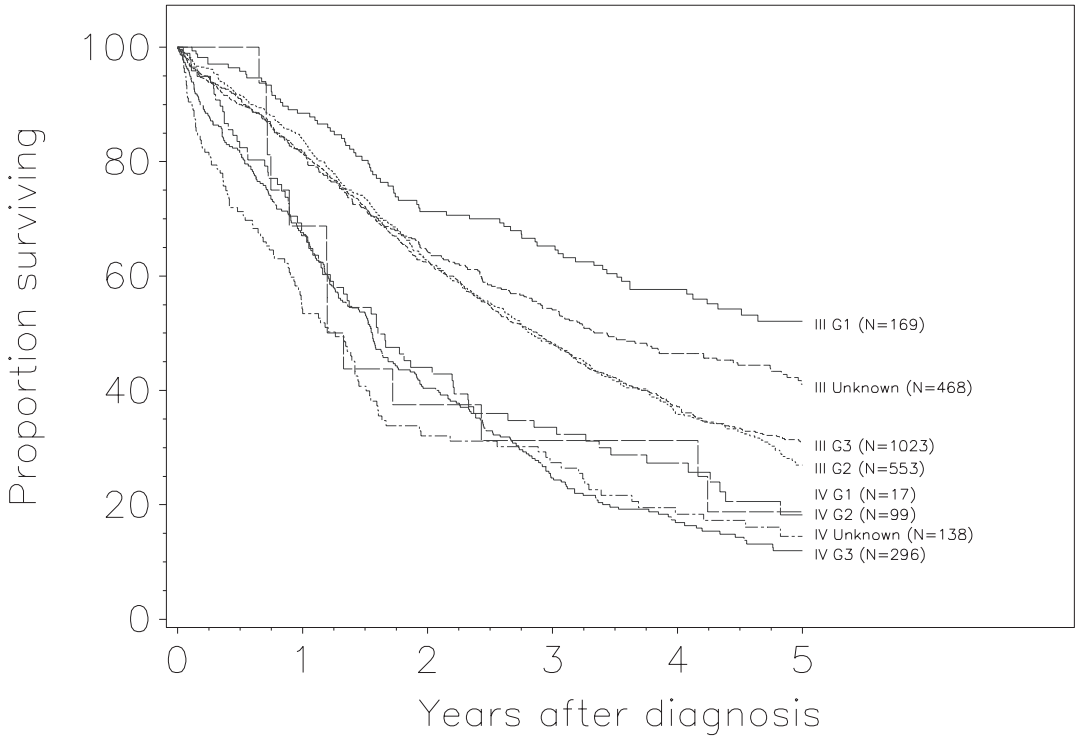
Fig. 19. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage III–IV patients by grade of differentiation, $n = 2550$.



Stage/Grade	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
I G1	403	52.0	97.7	95.8	92.1	90.8	86.6	Reference
I G2	337	54.1	97.3	92.5	88.8	84.9	82.1	1.4 (0.9–2.1)
I G3	167	58.2	95.7	88.1	81.5	75.2	69.1	1.7 (1.1–2.7)
I Unknown	802	48.8	98.2	96.6	94.4	93.4	91.9	0.8 (0.5–1.2)
II G1	61	51.4	93.4	90.0	90.0	86.3	83.8	2.1 (0.9–4.9)
II G2	109	55.4	94.4	84.9	76.1	69.8	66.9	7.0 (4.0–11.9)
II G3	137	58.0	87.5	82.2	75.8	68.8	62.8	6.5 (3.9–10.6)
II Unknown	116	53.1	93.8	83.8	79.0	73.2	73.2	5.1 (2.9–8.9)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

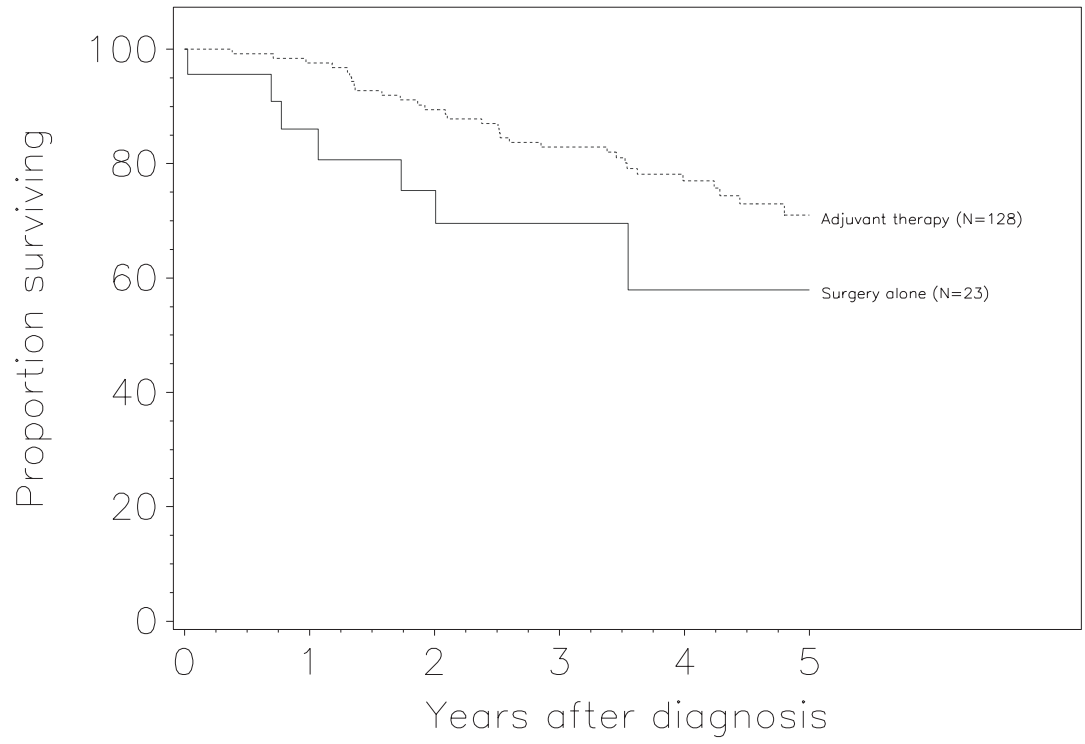
Fig. 20. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I–II patients by stage and grade of differentiation, $n = 2132$.



Stage/Grade	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
III G1	169	55.3	88.5	71.4	65.4	57.5	51.9	Reference
III G2	553	59.6	84.1	62.9	48.2	36.0	27.7	1.6 (1.3–2.1)
III G3	1023	60.5	81.4	62.3	48.1	37.0	30.8	1.6 (1.2–2.0)
III Unknown	468	56.7	81.7	64.4	54.1	46.3	41.7	1.4 (1.1–1.9)
IV G1	17	60.4	69.7	38.0	31.7	31.7	19.0	4.0 (2.1–7.6)
IV G2	99	59.5	67.4	44.5	33.8	27.1	18.1	4.7 (3.1–7.1)
IV G3	296	61.6	67.6	40.5	24.8	16.8	11.9	5.8 (4.0–8.3)
IV Unknown	138	59.6	53.6	32.6	28.0	18.6	14.5	6.1 (4.1–9.0)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

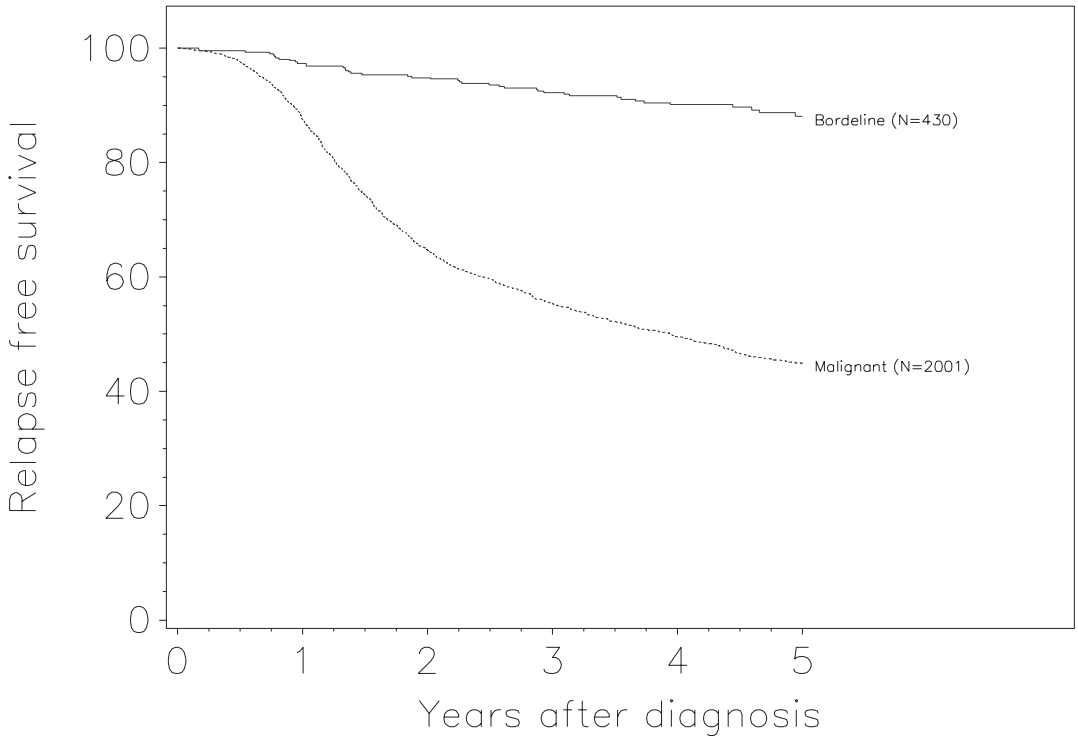
Fig. 21. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage III–IV patients by stage and grade of differentiation, $n = 2763$.



Treatment	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Surgery alone	23	68.2	85.7	74.7	67.9	57.4	57.4	Reference
Adjuvant therapy	128	56.3	97.6	89.5	82.8	76.9	70.4	0.7 (0.2–2.6)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

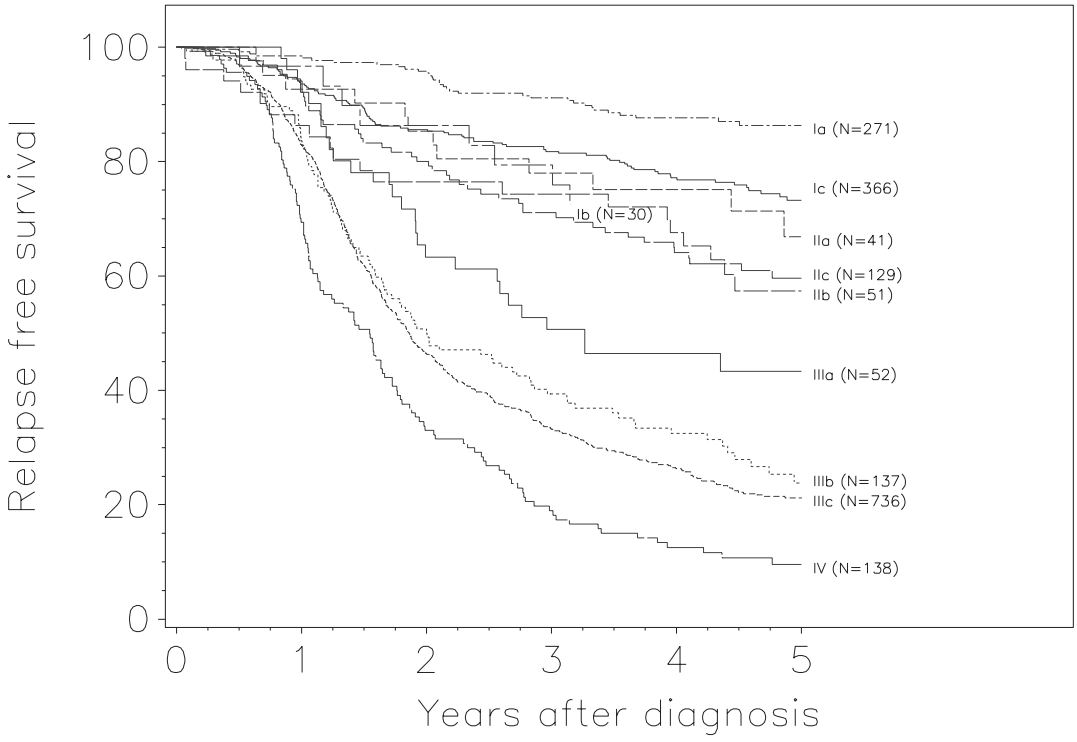
Fig. 22. Carcinoma of the ovary: patients treated in 1996–98. Survival in Stage I Grade 3 patients by mode of treatment, $n = 151$.



Histology	Patients (*n*)	Mean age (yr)	Relapse-free survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Borderline	430	47.9	97.4	94.9	92.2	90.1	88.3	Reference
Malignant	2001	55.6	87.6	64.8	55.3	49.5	44.8	2.7 (2.0–3.7)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

Fig. 23. Carcinoma of the ovary: patients treated in 1996–98. Relapse-free survival by histology, $n = 2431$.



Stage	Patients (*n*)	Mean age (yr)	Relapse-free survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Ia	271	52.7	98.5	95.8	91.0	87.3	85.9	Reference
Ib	30	51.5	96.6	86.3	79.4	71.8	71.8	2.5 (1.1–5.3)
Ic	366	52.3	93.6	85.6	81.7	77.1	73.3	2.3 (1.6–3.4)
IIa	41	53.0	92.7	85.4	77.8	75.0	67.1	2.8 (1.5–5.3)
IIb	51	57.2	86.3	76.4	74.3	67.7	57.1	4.1 (2.3–7.0)
IIc	129	53.4	92.1	80.1	71.0	64.0	59.4	3.5 (2.3–5.5)
IIIa	52	55.1	94.2	63.8	51.0	46.5	43.5	6.3 (3.8–10.4)
IIIb	137	57.0	83.8	50.9	39.3	32.3	24.2	9.4 (6.3–14.0)
IIIc	736	58.5	83.0	46.6	33.4	26.4	21.3	10.4 (7.3–14.8)
IV	138	57.8	69.5	33.6	19.4	12.6	9.6	16.9 (11.5–25.0)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age and country.

Fig. 24. Carcinoma of the ovary: patients treated in 1996–98. Relapse-free survival by FIGO stage, obviously malignant, $n = 1951$.

Table 16
Carcinoma of the ovary: patients treated in 1996–98. Multivariate analysis

Strata	Hazards ratios (95% CI)[a]			
	Stage I	Stage II	Stage III	Stage IV
Age				
Aged <50	Reference	Reference	Reference	Reference
Aged 50+	3.15 (2.13–4.64)	1.91 (1.23–2.95)	1.46 (1.27–1.69)	1.15 (0.87–1.52)
Histological type				
Serous	Reference	Reference	Reference	Reference
Mucinous	0.99 (0.66–1.49)	1.81 (0.97–3.36)	1.25 (1.00–1.56)	2.20 (1.46–3.33)
Endometrioid	0.97 (0.63–1.49)	1.01 (0.60–1.70)	0.96 (0.81–1.14)	0.70 (0.49–1.01)
Clear cell	1.24 (0.77–2.00)	1.19 (0.62–2.29)	1.76 (1.37–2.25)	1.13 (0.73–1.75)
Undifferentiated	2.40 (1.20–4.81)	1.15 (0.52–2.51)	1.10 (0.87–1.39)	1.11 (0.79–1.56)
Mixed epithelial	0.53 (0.16–1.75)	1.77 (0.68–4.56)	0.98 (0.68–1.41)	0.83 (0.47–1.47)
No histology	0.86 (0.35–2.07)	3.09 (1.21–7.85)	1.21 (0.89–1.64)	1.02 (0.62–1.67)
Grade				
Grade 1	Reference	Reference	Reference	Reference
Grade 2	1.23 (0.80–1.87)	3.53 (1.56–7.99)	1.86 (1.43–2.42)	1.14 (0.61–2.12)
Grade 3	1.47 (0.92–2.37)	3.29 (1.47–7.36)	1.77 (1.36–2.28)	1.53 (0.85–2.79)
Grade unknown	0.65 (0.43–1.00)	2.26 (0.95–5.37)	1.33 (1.01–1.74)	1.92 (1.01–3.64)
Sub-stage				
Ia	Reference	–	–	–
Ib	2.20 (1.26–3.87)	–	–	–
Ic	2.14 (1.48–3.09)	–	–	–
IIa	–	Reference	–	–
IIb	–	1.39 (0.75–2.57)	–	–
IIc	–	1.55 (0.85–2.80)	–	–
Residual disease				
No micro or macro residuals	Reference	Reference	Reference	Reference
<2 cm	1.11 (0.37–3.29)	1.32 (0.68–2.57)	1.84 (1.51–2.26)	1.02 (0.63–1.65)
>2 cm	1.81 (0.23–14.26)	2.46 (1.08–5.59)	2.90 (2.40–3.51)	1.31 (0.86–2.01)
Residual disease unknown	1.57 (0.95–2.61)	1.00 (0.54–1.85)	1.60 (1.29–1.98)	1.05 (0.68–1.64)
Adjuvant therapy				
Surgery alone	Reference	Reference	Reference	Reference
Adjuvant therapy	0.92 (0.61–1.39)	0.60 (0.29–1.25)	0.35 (0.29–0.44)	0.25 (0.17–0.37)
Other	0.49 (0.22–1.08)	0.86 (0.31–2.41)	0.37 (0.28–0.48)	0.31 (0.20–0.49)

[a]From Cox proportional hazard regression model, also adjusted for country.