Carcinoma of the Ovary

APM HEINTZ, F ODICINO, P MAISONNEUVE, MA QUINN, JL BENEDET, WT CREASMAN, HYS NGAN, S PECORELLI and U BELLER

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

Correspondence to: FIGO Annual Report Editorial Office, European Institute of Oncology, via Ripamonti 435, 20141 Milan, Italy
fax: +39-0257489813, e-mail: figo@ieo.it

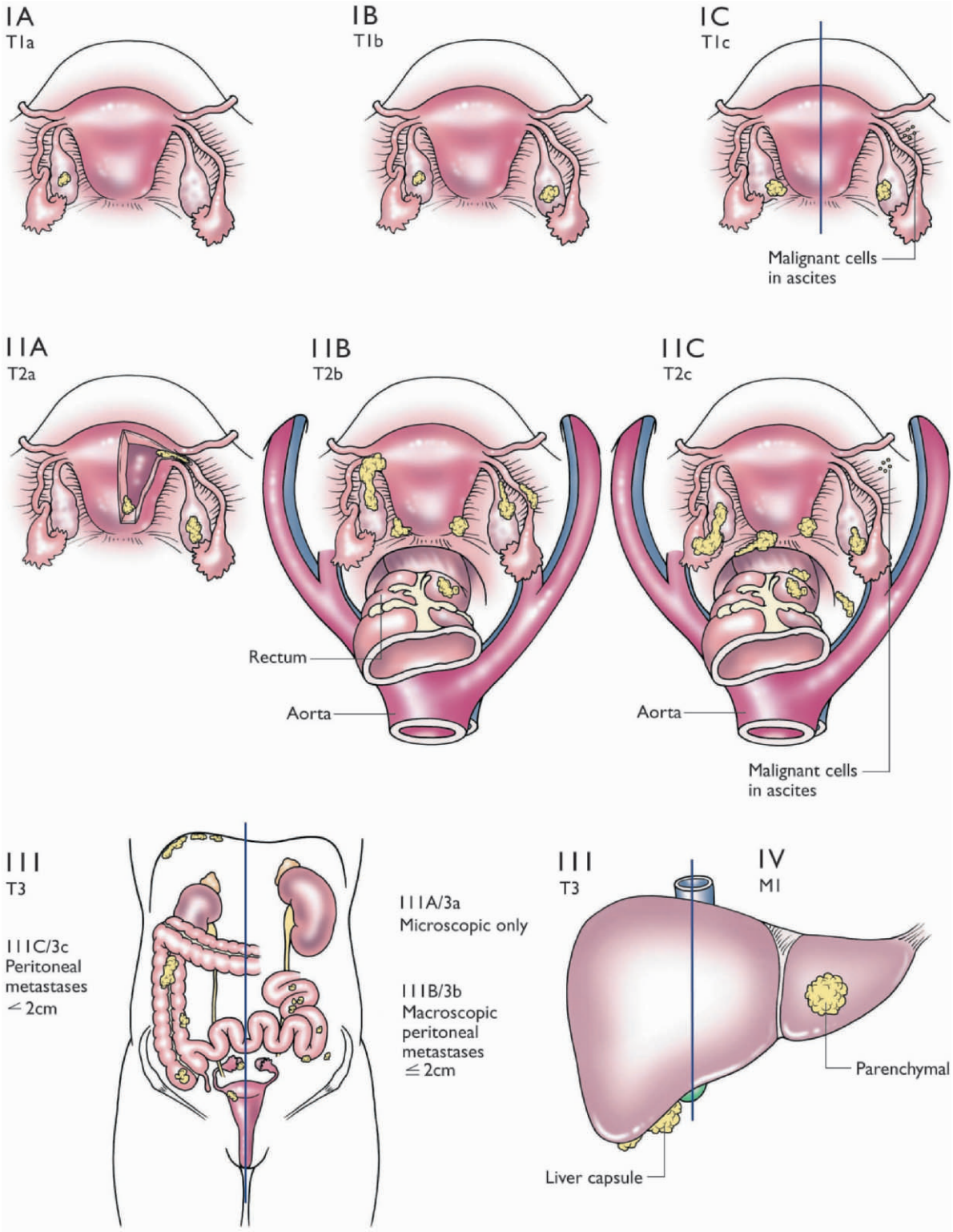

Fig. 1. Carcinoma of the ovary. Staging ovarian cancer: primary tumor and metastases (FIGO and TNM).

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.

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  - 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 this volume 7314 cases of ovarian malignancy (obvious malignant neoplasia and low potential malignancy)

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.

were collected. This is again more (1620) than in the 25th Annual Report and a positive sign for the future of this important activity. In the previous two reports we noticed that the highest incidence of ovarian cancer was moving to a younger age group. This tendency did not hold true in this analysis. The highest incidence is again in the 50–59 age group and the majority of the patients is older than 50 years. Only 950 patients are younger than 40 years (Figure 2).

Table 9 summarizes all cases of borderline ovarian tumors reported since 1958. The overall 5-year survival in this Report is 87.3% which is slightly lower than in Volume 25. In fact, the 5-year survival of borderline tumors did not change since 1982 when the survival improved from 77% to 89%. The reason for this improvement is unknown.

Table 10 compares the 5-year survival rate of patients with borderline tumors with that of patients with obviously malignant tumors. The good survival of the borderline group (87.3%) reflects the totally different biological properties of this disease compared to the obviously malignant tumors (survival 49.7%) (Figure 8). However, we have to realize that the majority of the borderline cases (611) are in Stage I. We also have to take into account that the histological data on borderline tumors are not always reliable. The small majority of these patients are younger than 50 years.

Table 11 analyzes the 5-year survival of the malignant cases by stage and compares the outcome with the results of the previous Annual Reports. There is an improvement in overall survival to 49.7%. Per stage improvements are seen in Stages Ib, Ic, IIIc and IV. The 5-year survival rate of all malignant cases is now 20% higher than in the period before the introduction of debulking surgery, cisplatin and, later, taxanes. The better survival of Stages Ib and Ic might be due to better staging and subsequent redistribution of cases. The same mechanism can explain the improvement of survival in Stage Ia and IV. See also Figure 5. In Figure 6 the importance of age for survival is illustrated. Comparison with Figure 2 shows that the younger ages tend to have lower-stage disease which is undoubtedly related to their better prognosis.

Figure 4 shows that serous cystadenocarcinomas are more frequent than all other histologic types together. They reach their highest peak in Stage III.

Table 13 reports the treatment data of this cohort. The majority of patients is treated with surgery and adjuvant chemotherapy. It is amazing that a group of 236 patients with advanced-stage disease is treated with surgery alone. The reason for this is unknown. Also, in this Report, a small group of patients is treated with radiation therapy although this treatment modality is no longer considered a serious option in ovarian carcinoma.

The majority of the patients who were treated with surgery alone had low-stage disease. This figure confirms again the existing doubt about the usefulness of adjuvant therapy in Stage I disease, which is illustrated in Fig. 11. This figure confirms similar results in the three previous Annual Reports.

Figures 5 and 6 show that the mean age of the patients who were treated with surgery only was higher in Stage IIIc and IV. This might reflect the worse medical condition of this age group.

As mentioned in the previous Volume, the number of interval debulking operations is low compared to the number of not optimally debulked patients at primary surgery. The number of second-look procedures is low, which is in agreement with the opinion that these procedures should be limited to patients who are treated in research protocols.

Table 4
Carcinoma of the ovary: Patients treated in 1999–2001. Distribution of patients by center and stage

		All	Not available	Stage I	Stage II	Stage III	Stage IV
All centers		7314	237	2512	581	3156	828
Nigeria	Ibadan (IF Adewole)	1	1	–	–	–	–
South Africa	Cape Town (L van Wijk)	76	–	39	5	25	7
	Pretoria (G Lindeque)	37	7	6	6	17	1
Argentina	Buenos Aires (J Sardi)	81	–	28	2	44	7
	Buenos Aires (R Testa)	43	–	23	2	18	–
	Santa Fe (A Ellena)	10	–	5	–	3	2
Brazil	Porto Alegre (G Py Gomez da Silveira)	2	–	–	–	2	–
	São Paulo (RL Rangel Costa)	12	–	3	–	9	–
	São Paulo (RL Rangel Costa)	45	–	14	4	22	5
Canada	Montreal (L Gilbert)	113	1	34	8	57	13
Chile	Santiago (E Suarez)	43	–	26	1	11	5
Peru	Arequipa (L Medina Fernandez)	41	1	22	2	16	–
United States	Baltimore, MD (RE Bristow)	133	18	23	5	49	38
	Jacksonville, FL (B-E Sevin)	40	–	10	–	27	3
	Nashville, TN (HW Jones)	105	5	33	10	46	11
	Orange, CA (PJ DiSaia)	41	–	8	6	15	12
China	Hong Kong (HYS Ngan)	166	21	71	20	38	16
	Wuhan (S Yu)	1	–	–	–	–	1
India	Karad (R Ranade)	5	1	1	–	3	–
Indonesia	Medan (M Fauzie Sahil)	27	–	5	1	21	–
Israel	Tel-Hashomer (T Perry)	112	6	14	7	71	14
Japan	Amagasaki (K Ito)	26	–	13	3	9	1
	Fukuoka (N Tsukamoto)	82	1	41	5	22	13
	Gunma (T Kanuma)	46	–	24	6	15	1
	Kochi (S Takeuchi)	13	–	4	1	6	2
	Kumamoto (H Katabuchi)	55	–	24	9	17	5
	Kurashiki-City (K Fujiwara)	30	–	20	1	6	3
	Nagasaki (T Ishimaru)	34	–	13	3	14	4
	Niigata (Y Aoki)	88	4	43	10	26	5
	Sapporo (N Sakuragi)	62	–	33	4	19	6
	Yonago (J Kigawa)	49	–	16	3	23	7
Korea	Gyeonggi-do (S-Y Park)	13	–	4	1	6	2
	Kyunggi-do (SJ Kim)	62	3	40	2	16	1
	Seoul (HP Lee)	112	1	63	5	37	6
	Seoul (JE Mok)	182	5	97	10	58	12
	Seoul (H-S Saw)	17	–	8	1	7	1
Taiwan	Taipei (S-N Chow)	120	13	47	7	39	14
Thailand	Bangkok (C Vipupinyo)	163	8	60	23	56	16
	Bangkok (S Wilailak)	145	8	68	24	39	6
	Songkhla (V Wootipoom)	151	2	48	19	64	18
Turkey	Ankara (A Ayhan)	149	4	37	8	92	8
Pakistan	Islamabad (R Shaheen)	6	–	2	–	4	–

continued on next page

Table 4, *continued*

		All	Not available	Stage I	Stage II	Stage III	Stage IV
Austria	Graz (M Lahousen)	82	–	22	2	51	7
	Innsbruck (C Marth)	101	1	34	6	52	8
Croatia	Rijeka (H Haller)	84	–	35	8	35	6
	Zagreb (S Jukic)	195	–	71	5	93	26
Czech Republic	Brno (A Dörr)	75	–	14	5	46	10
	Prague (E Kmonícková)	51	2	13	3	21	12
Finland	Oys (P Vuolo-Merilä)	106	6	27	15	42	16
	Turku (T Salmi)	80	–	20	4	48	8
France	Bordeaux (ML Campo)	66	–	11	4	40	11
Germany	Essen (R Callies)	25	–	6	2	13	4
	Greifswald (G Koehler)	83	–	21	8	33	21
	Hannover (H Kühnle)	111	6	26	7	58	14
	Mainz (H Koelbl)	65	3	22	5	32	3
	Wiesbaden (A du Bois)	94	–	24	9	50	11
	Würzburg (J Dietl)	116	21	25	8	47	15
Greece	Athens (G Magiakos)	43	3	7	3	22	8
	Athens (A Rodolakis)	177	1	57	14	90	15
Italy	Brescia (S Pecorelli)	145	8	46	13	57	21
	Latina (F Maneschi)	1	–	–	–	1	–
	Milano (N Colombo)	135	1	31	8	81	14
	Trento (E Arisi)	53	–	22	4	17	10
Poland	Warsaw (M Bidzinski)	455	11	148	40	222	34
	Warsaw (J Stelmachow)	30	–	8	2	18	2
Portugal	Coimbra (O Campos)	22	–	10	3	9	–
	Coimbra (C Freire de Oliveira)	58	–	16	4	29	9
	Coimbra (D Pereira da Silva)	26	2	10	–	5	9
Slovakia	Bratislava (L Kállay)	3	–	–	–	1	2
Slovenia	Maribor (I Takac)	90	–	32	8	20	30
Spain	Barcelona (S Dexeus)	52	4	33	1	13	1
	Barcelona (A Gil Moreno)	95	–	37	7	43	8
	Barcelona (J Pahisa Fabregas)	103	–	37	9	43	14
	Las Palmas de Gran Canaria (O Falcon-Vizcaino)	49	–	27	4	18	–
	Madrid (A de Armas Serra)	91	–	41	4	35	11
	Madrid (P de La Fuente)	55	–	30	6	17	2
Sweden	Gothenburg (G Horvath)	388	8	113	43	173	51
	Örebro (B Sorbe)	240	1	91	17	106	25
	Umeå (K Boman)	168	–	56	23	66	23
Switzerland	Basel (E Wight)	35	–	11	4	17	3
UK	Birmingham (KK Chan)	68	21	12	7	22	6
	Cambridge (LT Tan)	298	5	82	16	139	56
	Gateshead (T Lopes)	78	–	23	7	38	10
Yugoslavia	Nis (M Stanojevic)	84	13	24	3	31	13
Australia	Carlton (MA Quinn)	194	10	66	15	91	12

In Fig. 12 the survival of 2160 Stage IIIc patients is shown. In this Report, the survival of the group with no microscopic disease is the same as the survival of the group with no macroscopic disease. It is questionable whether patients with no microscopic disease after surgery for Stage IIIc disease exist. In fact, the data show again that patients with no residual disease have the best prognosis. Patients with residual disease $\leqslant 2$ cm or >2 cm only differ gradually from each other. These results are strong arguments in favor of an optimal primary or interval debulking surgery.

The multivariate analysis of the data of Volume 26 shows the same picture presented in the previous report. We see a standstill in the results of ovarian cancer treatment. The most important factor that can be further improved is surgery. A better outcome of the primary or interval debulking operation will surely have its positive influence on survival. However, the breakthrough in this disease has to come from new treatment strategies.

Table 5
Carcinoma of the ovary: Patients treated in 1999–2001. Distribution of patients (%) by country and mode of treatment (Stage I), $n = 2512$

Country	No. of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	2512	–	47	–	–	1	51	1
South Africa	45	–	73	–	–	–	27	–
Argentina	56	2	63	–	–	–	36	–
Brazil	17	–	29	–	–	–	71	–
Canada	34	–	85	–	–	–	12	3
Chile	26	–	77	–	–	8	15	–
Peru	22	–	95	–	–	–	–	5
USA	74	–	68	–	–	–	32	–
China	71	–	37	–	–	1	61	1
India	1	–	–	–	–	–	100	–
Indonesia	5	–	40	–	–	–	60	–
Israel	14	–	7	–	–	–	93	–
Japan	231	–	43	–	–	–	53	–
Korea	212	–	55	–	–	–	45	–
Taiwan	47	–	28	–	–	2	70	–
Thailand	176	1	44	–	–	2	53	1
Turkey	37	–	51	–	–	–	49	–
Pakistan	2	–	50	–	–	–	50	–
Austria	56	–	64	–	–	–	36	–
Croatia	106	–	29	–	–	1	70	–
Czech Republic	27	–	30	–	–	–	70	–
Finland	47	–	17	–	–	–	83	–
France	11	–	55	–	–	18	27	–
Germany	124	–	52	–	2	4	40	2
Greece	64	–	73	–	–	–	27	–
Italy	100	–	61	–	1	2	36	–
Poland	156	–	6	–	–	–	94	1
Portugal	36	–	67	–	3	–	31	–
Slovenia	32	–	63	–	–	–	38	–
Spain	205	–	64	–	–	3	32	–
Sweden	260	–	25	–	–	–	73	2
Switzerland	11	–	82	–	–	–	18	–
UK	117	–	54	–	1	1	44	–
Yugoslavia	24	–	8	4	–	8	79	–
Australia	66	–	62	–	–	2	36	–

Table 6
Carcinoma of the ovary: Patients treated in 1999–2001. Distribution of patients (%) by country and mode of treatment (Stage II), $n = 581$

Country	No. of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	581	–	11	–	1	1	86	1
South Africa	11	–	55	–	–	–	45	–
Argentina	4	–	–	–	–	–	100	–
Brazil	4	–	25	–	–	–	75	–
Canada	8	–	63	–	–	–	38	–
Chile	1	–	–	–	–	100	–	–
Peru	2	–	–	–	–	–	50	50
USA	21	–	10	–	14	–	76	–
China	20	–	15	–	–	–	85	–
Indonesia	1	–	–	–	–	–	100	–
Israel	7	–	–	–	–	–	100	–
Japan	45	–	–	–	–	2	91	–
Korea	19	–	21	–	–	5	74	–
Taiwan	7	–	–	–	–	–	100	–
Thailand	66	–	3	–	–	2	92	3
Turkey	8	–	–	–	–	–	100	–
Austria	8	–	25	–	–	–	75	–
Croatia	13	–	–	–	–	8	92	–
Czech Republic	8	13	25	–	–	–	63	–
Finland	19	–	5	–	–	–	95	–
France	4	–	–	–	–	–	100	–
Germany	39	–	13	–	3	–	82	3
Greece	17	–	12	–	–	–	88	–
Italy	26	–	8	–	4	–	88	–
Poland	42	–	–	–	–	2	98	–
Portugal	7	–	–	–	–	–	100	–
Slovenia	8	–	38	–	–	–	50	13
Spain	31	–	19	–	–	3	77	–
Sweden	83	–	5	–	–	–	95	–
Switzerland	4	–	25	–	–	–	75	–
UK	30	–	33	–	3	–	63	–
Yugoslavia	3	–	–	–	–	–	100	–
Australia	15	–	7	–	–	–	93	–

Table 7
Carcinoma of the ovary: Patients treated in 1999–2001. Distribution of patients (%) by country and mode of treatment (Stage III), $n = 3156$

Country	No. of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	3156	1	7	–	6	1	83	2
South Africa	42	–	21	–	–	–	74	5
Argentina	65	–	8	–	3	2	88	–
Brazil	33	–	21	–	6	–	73	–
Canada	57	–	42	–	7	–	51	–
Chile	11	–	9	–	–	9	82	–
Peru	16	–	44	6	–	–	44	6
USA	137	1	9	–	7	–	80	3
China	38	–	8	–	3	–	89	–
India	3	–	–	–	33	–	67	–
Indonesia	21	–	10	–	10	–	76	5
Israel	71	–	1	–	14	1	83	–
Japan	157	–	2	–	12	2	74	1
Korea	124	–	6	–	5	–	87	2
Taiwan	39	3	8	–	–	–	90	–
Thailand	159	–	4	–	–	1	94	1
Turkey	92	–	4	–	–	–	96	–
Pakistan	4	–	–	–	–	–	100	–
Austria	103	–	4	–	9	–	84	3
Croatia	128	–	4	–	9	–	80	6
Czech Republic	67	–	3	–	7	–	90	–
Finland	90	–	4	–	1	–	94	–
France	40	–	–	–	8	8	75	10
Germany	233	–	6	–	9	–	79	5
Greece	112	1	3	–	3	–	92	2
Italy	158	–	1	–	6	2	87	5
Poland	240	–	3	–	1	–	96	–
Portugal	43	–	9	–	7	2	81	–
Slovakia	1	–	–	–	–	–	100	–
Slovenia	20	–	5	–	–	–	95	–
Spain	169	3	11	–	14	2	69	2
Sweden	345	1	4	–	–	–	94	1
Switzerland	17	–	12	–	–	6	82	–
UK	199	5	14	–	24	–	54	4
Yugoslavia	31	–	3	–	10	–	74	13
Australia	91	2	11	–	2	–	82	2

Table 8
Carcinoma of the ovary: Patients treated in 1999–2001. Distribution of patients (%) by country and mode of treatment (Stage IV), $n = 828$

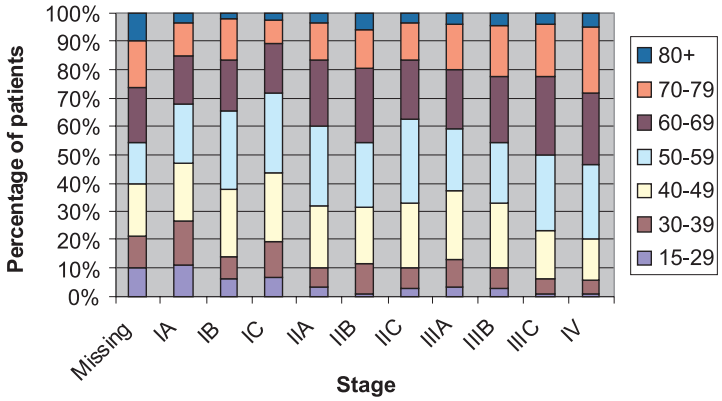
Country	No. of patients	First line of treatment (%)						
		None	Surgery alone	RT alone	Neoadj CT + surg	Surg + adj RT	Surg + adj CT	Other non-standard
All	828	4	7	–	12	1	63	11
South Africa	8	–	–	–	38	–	25	38
Argentina	9	11	22	–	–	–	67	–
Brazil	5	–	–	–	–	–	100	–
Canada	13	–	23	–	8	–	15	54
Chile	5	–	–	–	–	–	100	–
USA	64	6	6	–	13	–	66	9
China	17	6	–	–	53	6	29	6
Israel	14	–	–	–	29	–	71	–
Japan	47	2	2	–	21	–	64	2
Korea	22	–	5	–	5	–	73	18
Taiwan	14	7	–	–	–	–	93	–
Thailand	40	–	15	–	3	–	78	5
Turkey	8	–	13	–	–	–	88	–
Austria	15	7	7	–	27	–	53	7
Croatia	32	–	9	–	34	–	31	25
Czech Republic	22	18	–	–	14	–	55	14
Finland	24	–	4	–	4	–	88	4
France	11	–	–	–	–	9	82	9
Germany	68	1	16	–	7	–	49	26
Greece	23	4	–	–	4	–	70	22
Italy	46	2	2	–	13	4	63	15
Poland	36	–	3	–	–	–	89	8
Portugal	18	17	11	–	6	6	61	–
Slovakia	2	–	50	–	50	–	–	–
Slovenia	30	–	27	–	–	–	73	–
Spain	36	8	8	–	22	6	53	3
Sweden	99	1	5	–	2	–	86	5
Switzerland	3	–	–	–	–	–	100	–
UK	72	10	8	–	19	–	42	17
Yugoslavia	13	46	8	–	8	–	23	15
Australia	12	8	–	–	17	–	67	8

Table 9
Carcinoma of the ovary: Epithelial ovarian carcinoma of low malignant potential (borderline). Five-year survival rate. Cases reported in Volumes 15–26.

Vol.	Year	Patients (*n*)	Overall 5-year 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
26	1999–2001	866	87.3

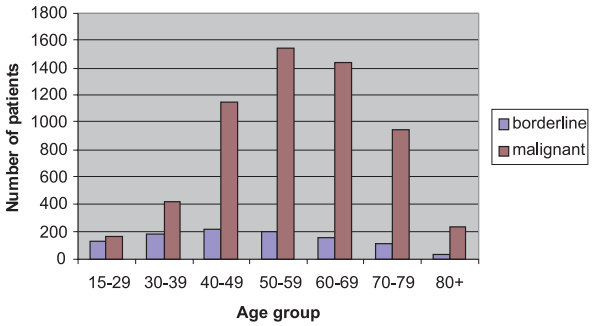
Table 10
Carcinoma of the ovary: Patients treated in 1999–2001. Number of patients and 5-years survival rate by histology

	Borderline		Malignant	
	Patients (*n*)	Overall 5-year survival (%)	Patients (*n*)	Overall 5-year survival (%)
All subjects	866	87.3	4933	49.7



Age group	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
15–29	317	22	147	9	69	3	1	10	6	10	33	7
30–39	633	26	205	11	130	7	13	25	20	26	128	42
40–49	1424	43	278	34	250	23	24	82	50	81	440	119
50–59	1837	42	283	39	283	29	28	106	45	79	687	216
60–69	1672	44	225	26	182	24	31	75	42	83	731	209
70–79	1135	38	159	21	85	13	17	46	33	64	466	193
80+	296	22	46	3	27	4	7	13	8	16	108	42

Fig. 2. Carcinoma of the ovary: patients treated in 1999–2001. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and age groups.



Age group	Borderline		Malignant	
	n	%	*n*	%
15–29	135	13.3	156	2.7
30–39	177	17.5	421	7.2
40–49	219	21.6	1147	19.5
50–59	195	19.3	1549	26.3
60–69	149	14.7	1431	24.3
70–79	111	11.0	943	16.0
80+	26	2.6	236	4.0
Total	1012	100.0	5883	100.0

Fig. 3. Carcinoma of the ovary: patients treated in 1999–2001. Distribution of patients by malignant and borderline cases and age groups.

Table 11
Carcinoma of the ovary: 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	42.0 (Ib–IIa)			31.6		6.9 (IIIa–IIIc)			2.6	26.8
16	1963–68	4588	66.7	51.9		49.7	38.0 (IIb–IIc)		8.6 (IIIa–IIIc)			5.0	27.3
17	1969–72	4892	72.0	62.5	57.4	52.2	37.5 (IIb–IIc)		10.8 (IIIa–IIIc)			4.6	30.1
18	1973–75	5268	69.7	63.9	50.3	51.8	42.2 (IIb–IIc)		13.3 (IIIa–IIIc)			4.1	30.5
19	1976–78	6724	72.3	56.1	58.1	47.7	42.1 (IIb–IIc)		13.5 (IIIa–IIIc)			4.5	29.8
20	1979–81	8082	76.6	67.7	59.6	51.1	43.5 (IIb–IIc)		17.4 (IIIa–IIIc)			4.7	30.9
21	1982–86	10912	82.3	74.9	67.7	60.6	53.8 (IIb–IIc)		22.7 (IIIa–IIIc)			8.0	35.0
22	1987–89	2942	83.5	79.3	73.1	64.6	58.0 (IIb–IIc)		22.9 (IIIa–IIIc)			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
26	**1999–2001**	**4911**	**89.6**	**86.1**	**83.4**	**70.7**	**65.5**	**71.4**	**46.7**	**41.5**	**32.5**	**18.6**	**49.7**

Table 12
Carcinoma of the ovary: Patients treated in 1999–2001. 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	1131	92.1	463	95.4	632	89.6
Ib	115	84.9	43	84.9	69	86.1
Ic	842	84.7	148	91.5	663	83.4
IIa	83	74.5	8	100	72	70.7
IIb	104	67.4	4	–	93	65.5
IIc	286	69.8	36	63.2	241	71.4
IIIa	159	49.7	19	71.9	128	46.7
IIIb	307	42.5	19	65.9	271	41.5
IIIc	2160	32.6	53	51.3	2030	32.5
IV	728	17.9	14	12.1	626	18.6

Table 13
Carcinoma of the ovary: Patients treated in 1999–2001. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and mode of treatment

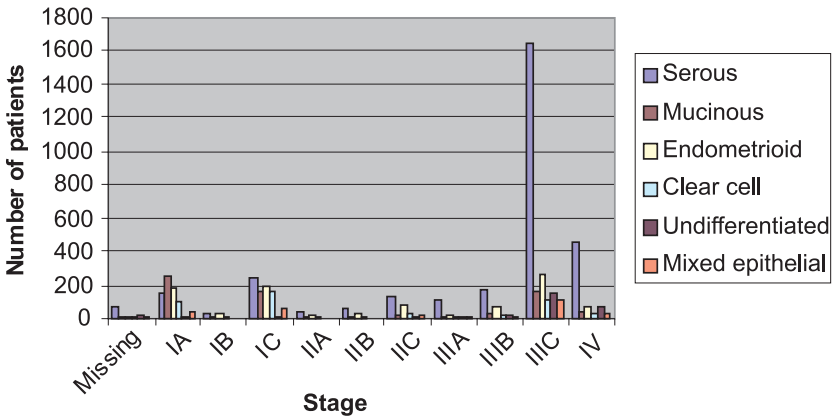
Treatment	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
No treatment	50	15	–	–	–	1	–	–	–	1	13	20
Surgery alone	731	25	373	25	64	8	4	16	13	13	135	55
Radiotherapy alone	2	–	–	–	–	–	–	–	–	2	–	–
Neoadj CT + surg	297	12	2	–	3	–	3	2	7	12	170	86
Surgery + adj RT	60	3	10	1	14	1	2	3	1	2	17	6
Surgery + adj CT	4608	61	356	56	732	78	95	277	140	284	2039	490
Other non-standard	132	8	7	–	7	–	1	4	3	6	50	46

Table 14
Carcinoma of the ovary: Patients treated in 1999–2001. Response to treatment by stage.

Response	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Missing	2190	103	473	45	308	23	35	107	51	84	740	221
Complete response	3115	61	783	83	612	70	64	178	94	144	859	167
Partial response	625	11	9	2	17	1	9	9	14	44	374	135
Stable disease	230	6	3	1	4	–	2	7	9	18	128	52
Progressive disease	580	17	6	4	24	5	7	21	17	36	287	156
Not assessable	574	39	69	8	61	4	4	35	19	33	205	97

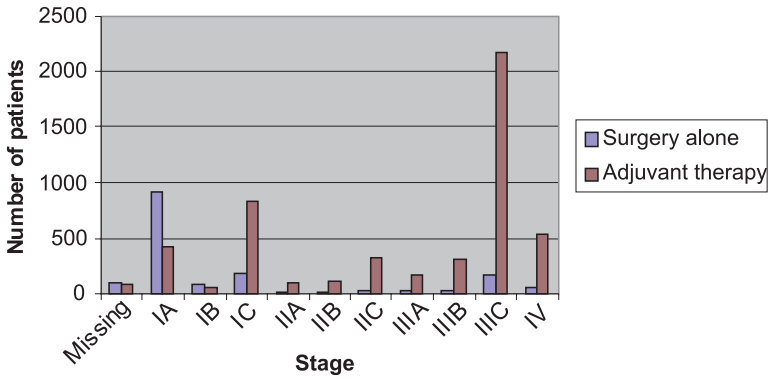
Table 15
Carcinoma of the Ovary: Patients treated in 1999–2001. Relapses by stage.

Site of relapse	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Missing site	135	4	7	–	5	1	3	5	3	10	73	24
Local and metastatic	423	6	7	3	30	6	5	14	11	23	249	69
Metastatic	608	6	22	8	50	6	15	27	10	42	320	102
Local (regional)	1079	21	41	6	74	16	20	48	48	76	615	114
Total	2245	37	77	17	159	29	43	94	72	151	1257	309



Histology	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Serous	3085	62	157	34	235	41	49	130	106	171	1646	454
Mucinous	732	16	248	10	159	8	7	27	10	34	158	55
Endometrioid	958	9	180	28	200	22	30	75	21	66	257	70
Clear cell	494	11	102	6	159	8	10	34	7	19	108	30
Undifferentiated	320	19	15	3	16	4	5	14	12	17	151	64
Mixed epithelial	294	8	47	1	52	5	4	22	8	13	104	30

Fig. 4. Carcinoma of the ovary: patients treated in 1999–2001. Epithelial ovarian cancer (obviously malignant cases). Distribution by stage and histologic type.



	All	Missing	Ia	Ib	Ic	IIa	IIb	IIc	IIIa	IIIb	IIIc	IV
Surgery alone												
Patients (*n*)	1596	87	912	77	184	17	8	37	27	25	160	62
Mean age	52.1	49.5	49.6	54.6	50.3	56.6	52.5	56.0	50.6	53.6	62.2	65.9
Adjuvant therapy												
Patients (*n*)	5055	82	416	65	825	85	109	310	163	300	2168	532
Mean age	56.5	53.7	53.7	53.2	51.9	56.5	56.6	55.8	55.7	56.8	58.4	59.3

Fig. 5. Carcinoma of the ovary: patients treated in 1999–2001. Distribution of patients and age at diagnosis by mode of treatment and stage.

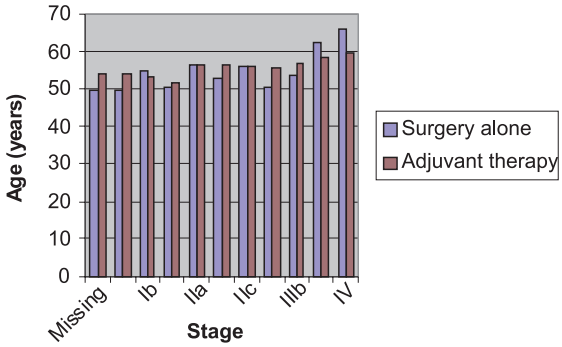
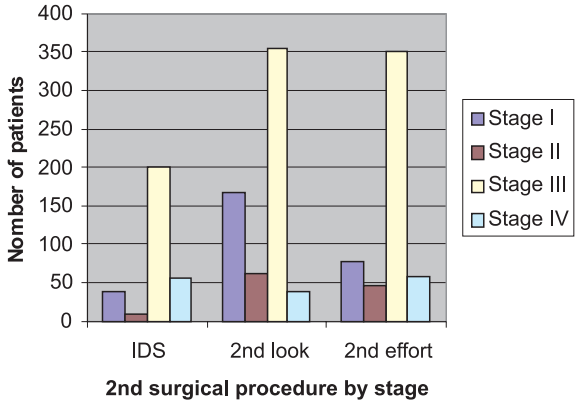
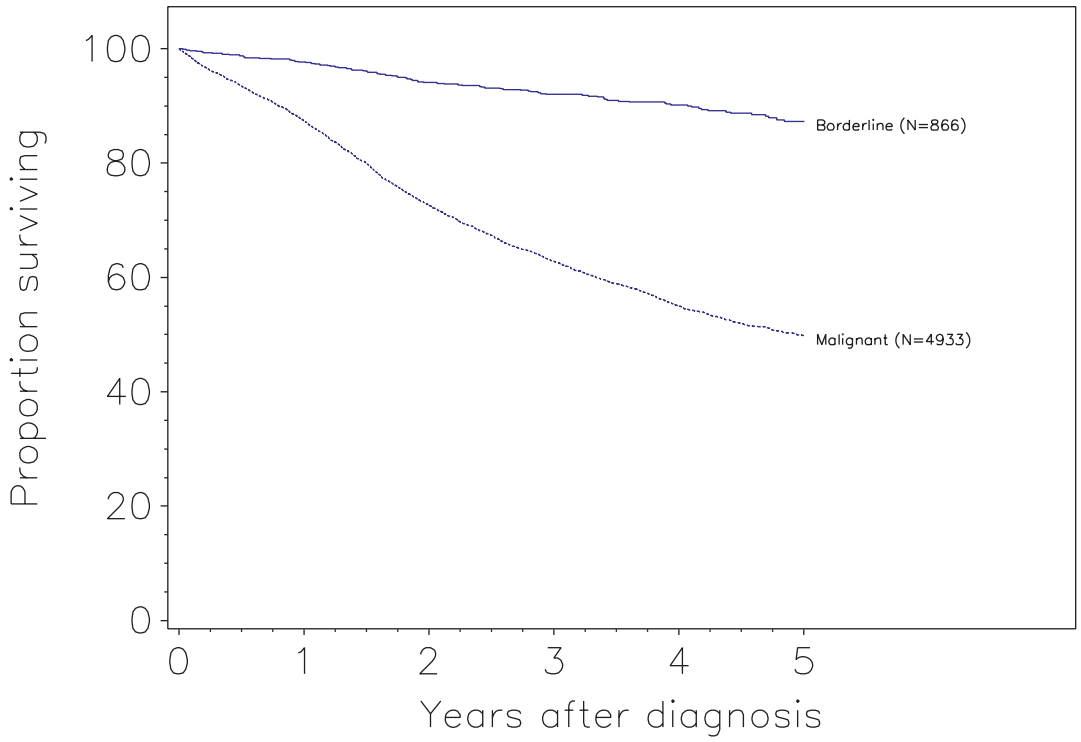


Fig. 6. Carcinoma of the ovary: patients treated in 1999–2001. Age of patients at diagnosis by mode of treatment and stage.



	All	Missing	Stage I	Stage II	Stage III	Stage IV
Missing	5833	209	2230	465	2252	677
IDS	309	7	38	9	199	56
Second look	627	6	167	62	355	37
Second effort	545	15	77	45	350	58
All	7314	237	2512	581	3156	828

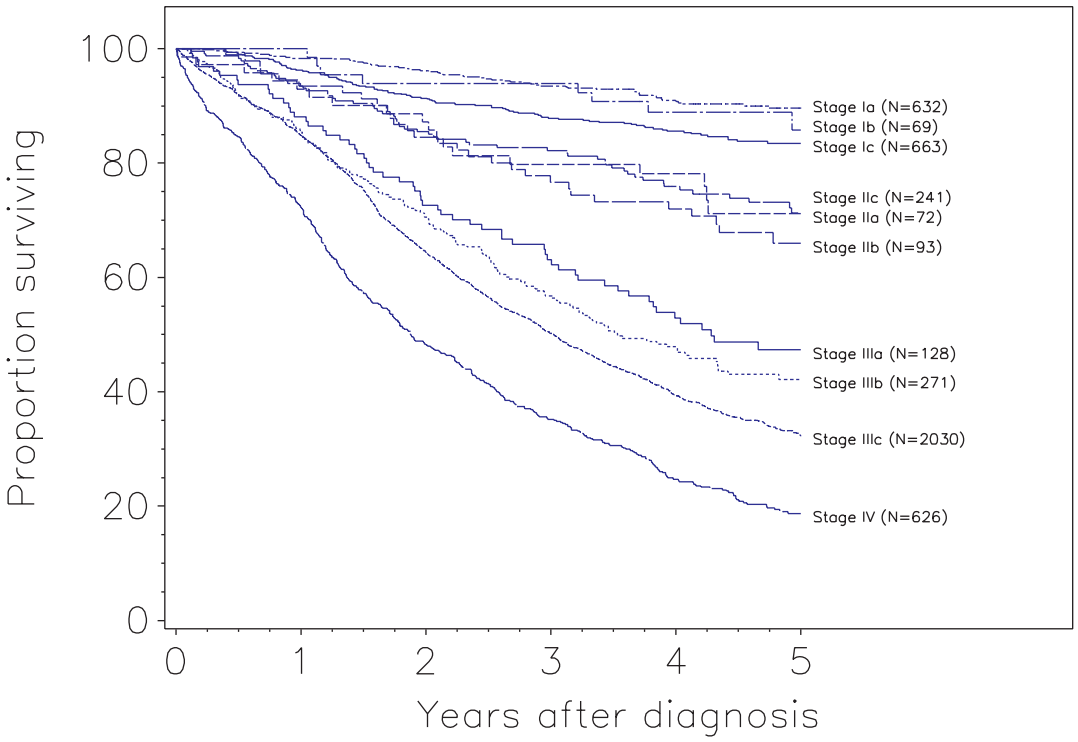
Fig. 7. Carcinoma of the ovary: patients treated in 1999–2001. Type of second surgical procedure by stage.



Histology	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Borderline	866	49.3	97.7	94.1	92.1	90.2	87.3	Reference
Malignant	4933	57.6	87.4	72.7	62.9	54.9	49.7	1.9 (1.5–2.3)

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

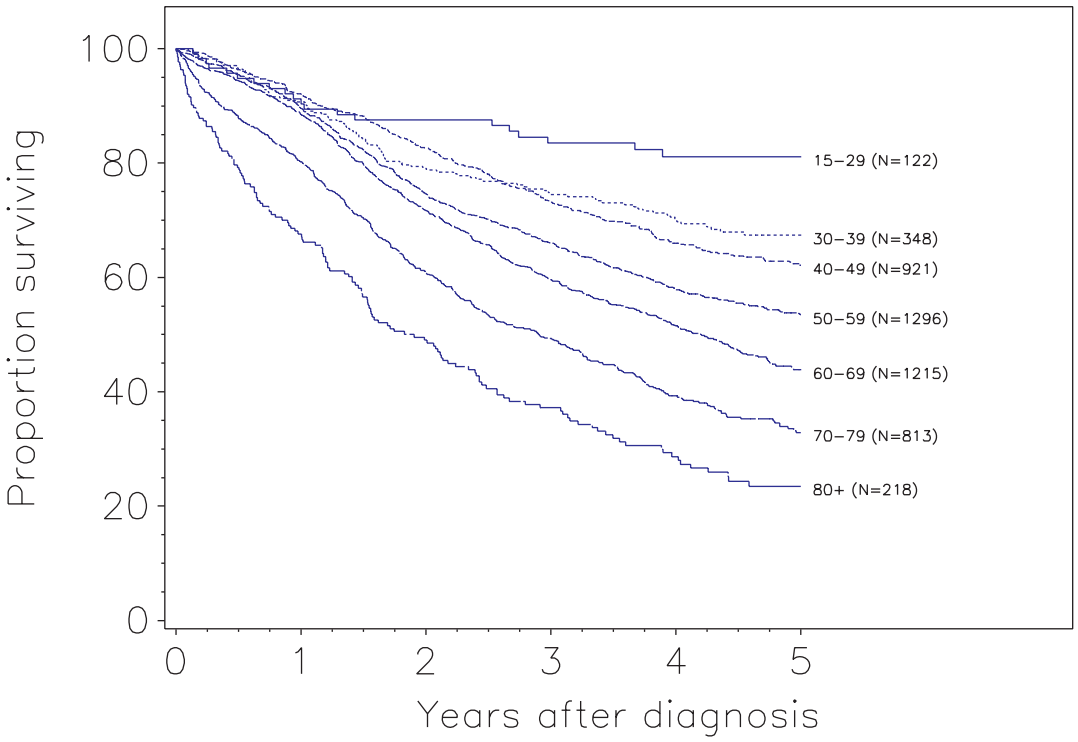
Fig. 8. Carcinoma of the ovary: patients treated in 1999–2001. Survival by histology, $n = 5799$.



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	632	53.5	98.4	96.2	93.5	91.1	89.6	Reference
Ib	69	54.1	100	93.9	93.9	88.6	86.1	0.8 (0.4–1.6)
Ic	663	52.8	96.3	91.4	87.9	85.6	83.4	1.1 (0.8–1.4)
IIa	72	56.1	93.0	87.2	79.7	78.1	70.7	1.8 (1.1–3.0)
IIb	93	57.4	93.4	84.5	76.6	71.9	65.5	2.1 (1.4–3.1)
IIc	241	56.3	93.6	85.6	82.3	75.8	71.4	1.8 (1.4–2.5)
IIIa	128	57.1	88.1	72.6	63.1	52.8	46.7	4.0 (2.9–5.4)
IIIb	271	58.2	85.7	70.6	56.8	47.7	41.5	4.4 (3.4–5.7)
IIIc	2030	59.7	84.8	64.5	50.3	39.3	32.5	5.8 (4.7–7.0)
IV	626	60.4	72.4	48.4	35.2	24.8	18.6	8.9 (7.2–11.0)

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

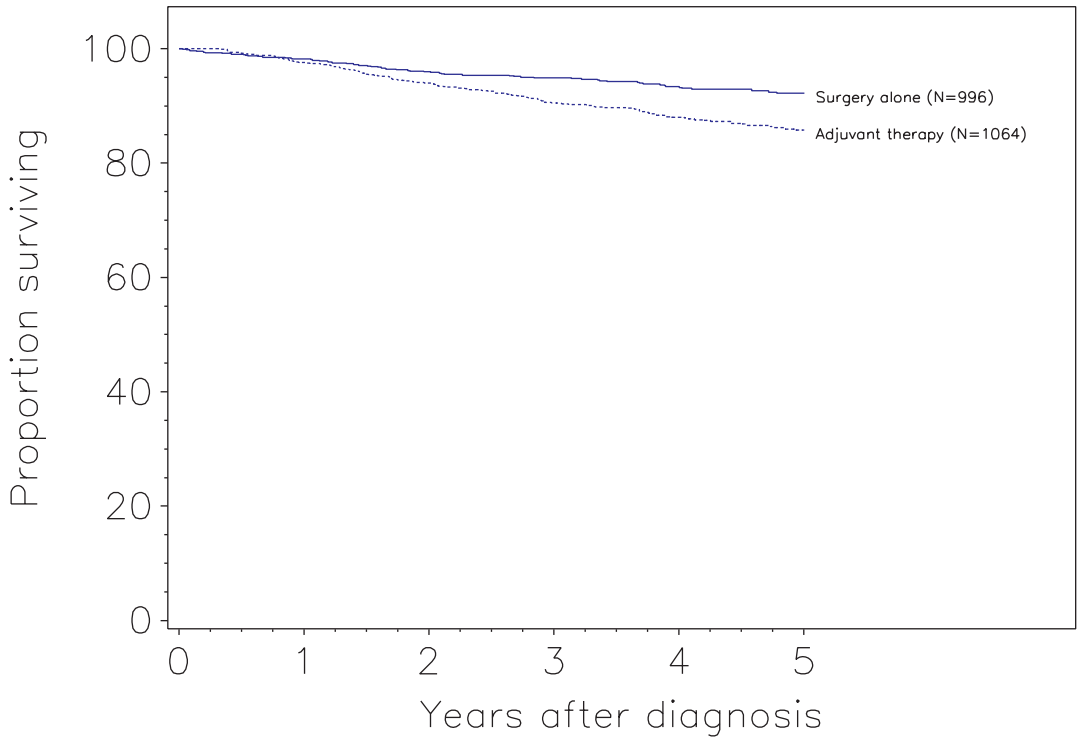
Fig. 9. Carcinoma of the ovary: patients treated in 1999–2001. Survival by FIGO stage, obviously malignant, $n = 4825$.



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	122	24.6	90.5	87.7	83.8	81.5	81.5	0.7 (0.4–1.0)
30–39	348	35.3	90.8	79.2	74.6	70.3	67.3	0.8 (0.6–1.0)
40–49	921	45.3	92.0	82.6	73.2	65.9	62.1	0.8 (0.7–1.0)
50–59	1296	54.4	89.6	74.6	66.1	57.8	53.2	Reference
60–69	1215	64.4	88.6	71.7	59.7	51.5	44.0	1.1 (1.0–1.2)
70–79	813	73.9	80.3	61.0	49.4	39.3	33.3	1.5 (1.4–1.7)
80+	218	83.3	67.8	49.3	37.4	28.7	23.0	2.6 (2.1–3.1)

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

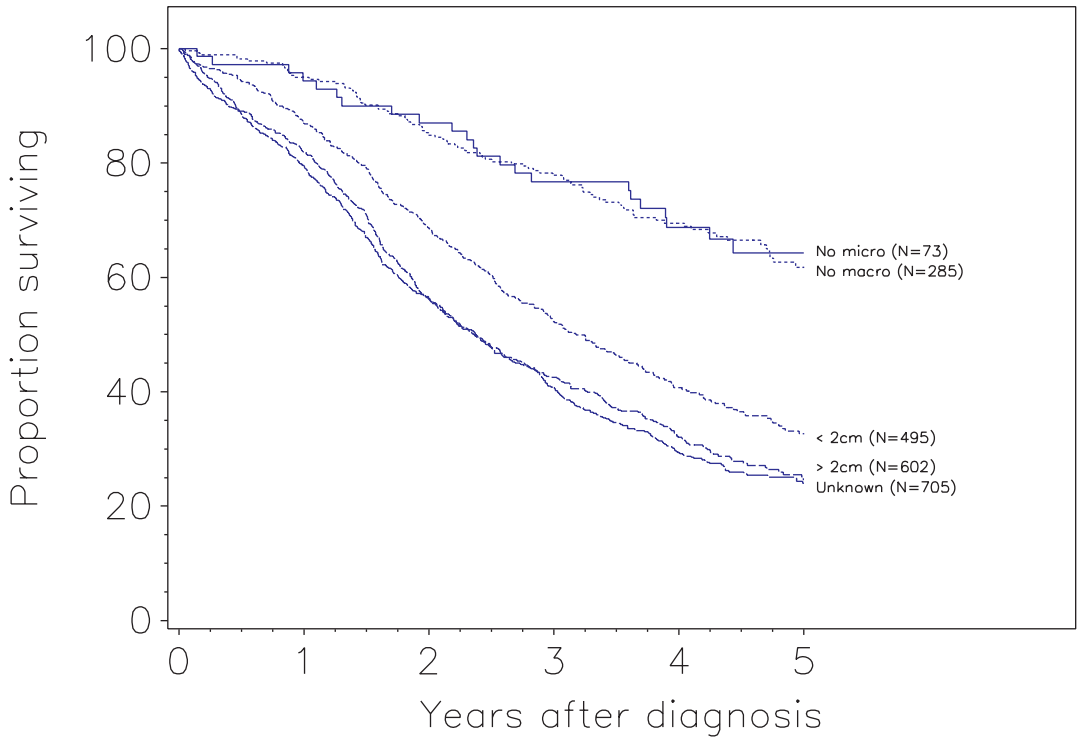
Fig. 10. Carcinoma of the ovary: patients treated in 1999–2001. Survival by age, obviously malignant, $n = 4933$.



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	
Surgery alone	996	50.2	98.2	96.0	94.9	93.4	92.2	Reference
Adjuvant therapy	1064	53.0	97.6	94.0	90.5	88.0	85.8	1.5 (1.0–2.1)

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

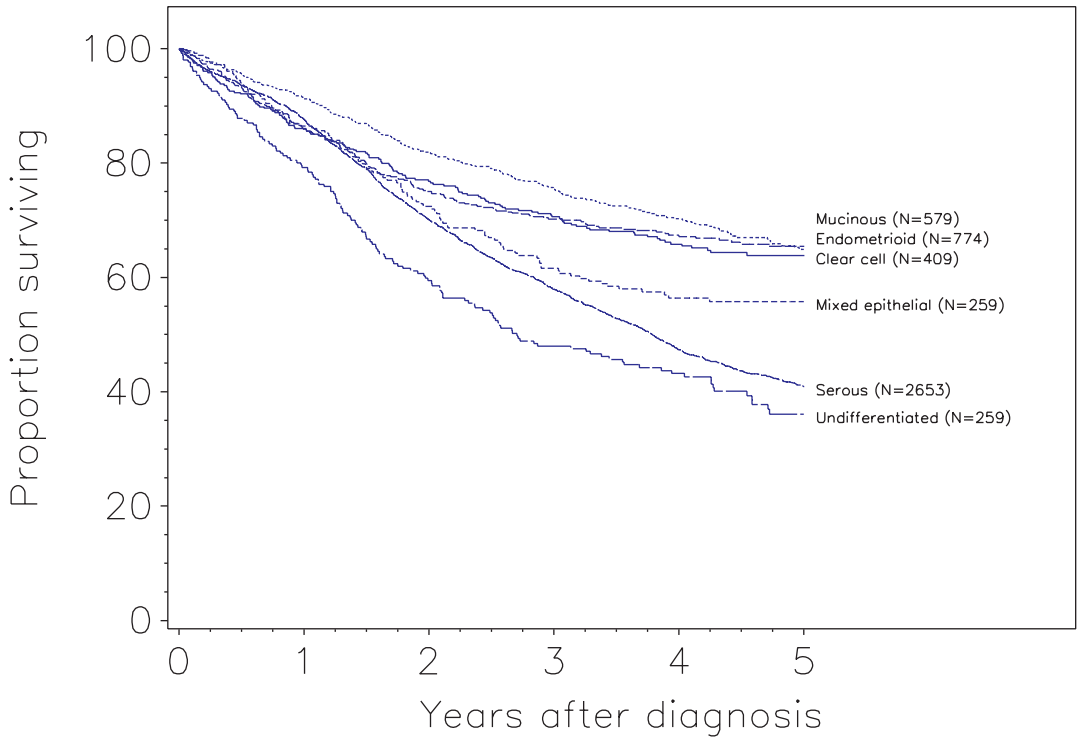
Fig. 11. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I patients by mode of treatment, $n = 2060$.



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	73	55.8	94.4	87.1	76.8	68.6	63.5	Reference
No macro residual	285	56.3	95.0	85.0	77.9	69.3	62.1	1.0 (0.6–1.6)
⩽2 cm	495	58.9	86.8	68.7	52.3	40.8	32.9	2.3 (1.5–3.5)
>2 cm	602	60.6	82.0	56.4	42.6	32.0	24.8	3.0 (1.9–4.5)
Unknown	705	61.1	79.6	56.3	40.7	29.3	24.1	2.9 (1.9–4.5)

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

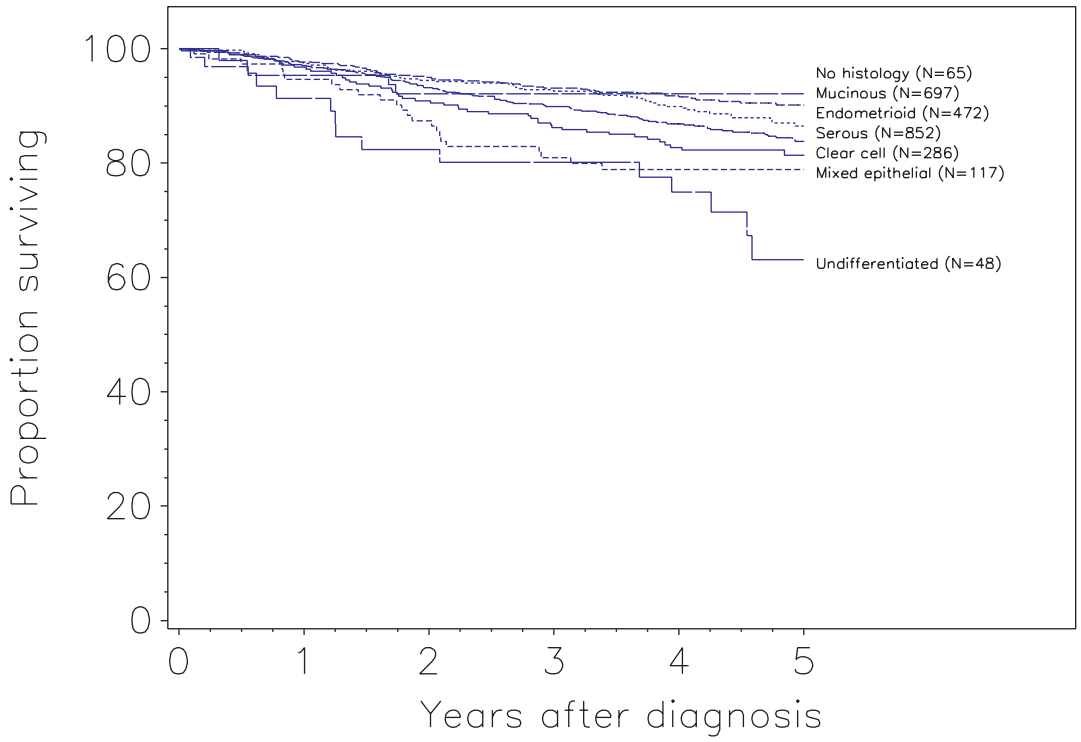
Fig. 12. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage IIIc patients by completeness of surgery, $n = 2160$.



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	2653	59.8	87.7	70.1	58.0	47.4	41.0	Reference
Mucinous	579	52.7	86.2	75.2	70.3	67.5	65.4	1.2 (1.0–1.4)
Endometrioid	774	55.7	91.3	82.0	75.6	70.2	64.8	0.9 (0.8–1.0)
Clear cell	409	54.8	86.1	76.8	70.6	65.8	63.6	1.4 (1.2–1.7)
Undifferentiated	259	58.8	79.2	59.3	47.9	43.0	36.3	1.3 (1.1–1.5)
Mixed epithelial	259	54.4	86.6	72.6	61.8	56.3	55.6	1.1 (0.9–1.4)

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

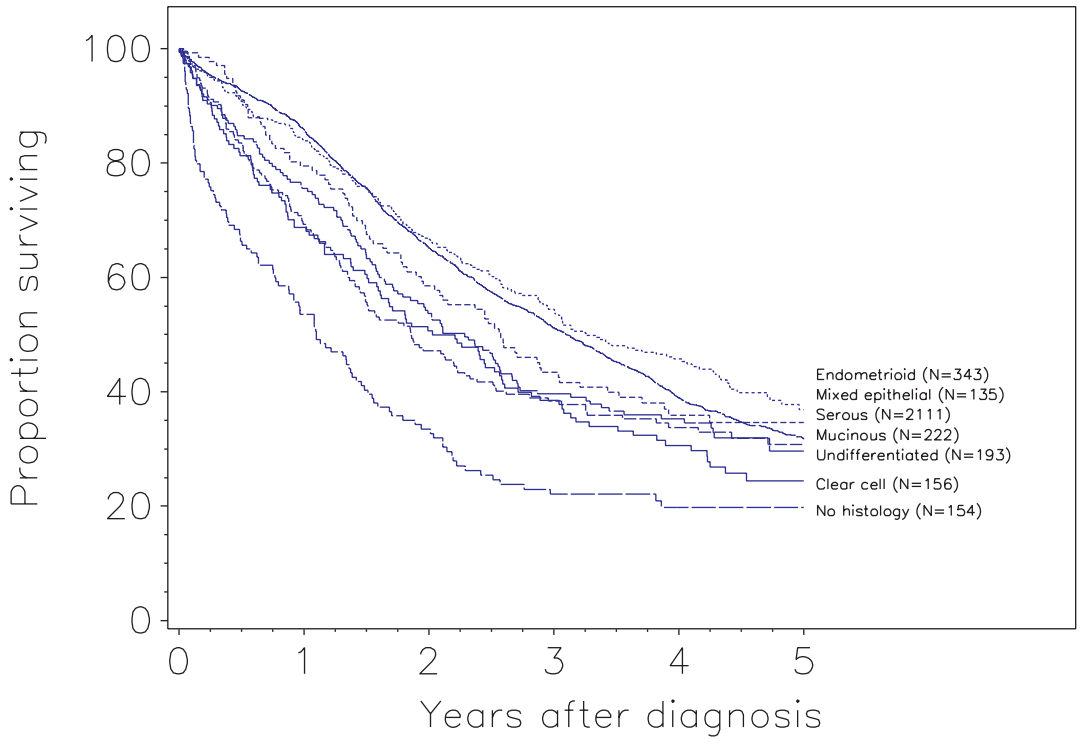
Fig. 13. Carcinoma of the ovary: patients treated in 1999–2001. Survival by histologic type, obviously malignant, $n = 4933$.



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	852	54.8	97.1	93.2	89.9	86.8	83.9	Reference
Mucinous	697	49.1	97.8	95.1	93.2	91.8	90.1	0.9 (0.6–1.3)
Endometrioid	472	53.3	97.4	94.5	92.6	90.0	86.5	0.9 (0.7–1.3)
Clear cell	286	54.1	96.8	90.9	86.3	82.8	81.5	1.3 (1.0–1.9)
Undifferentiated	48	53.4	91.4	82.5	80.2	75.2	64.7	2.1 (1.2–3.8)
Mixed epithelial	117	49.8	94.8	87.5	80.9	78.8	78.8	1.7 (1.1–2.6)

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

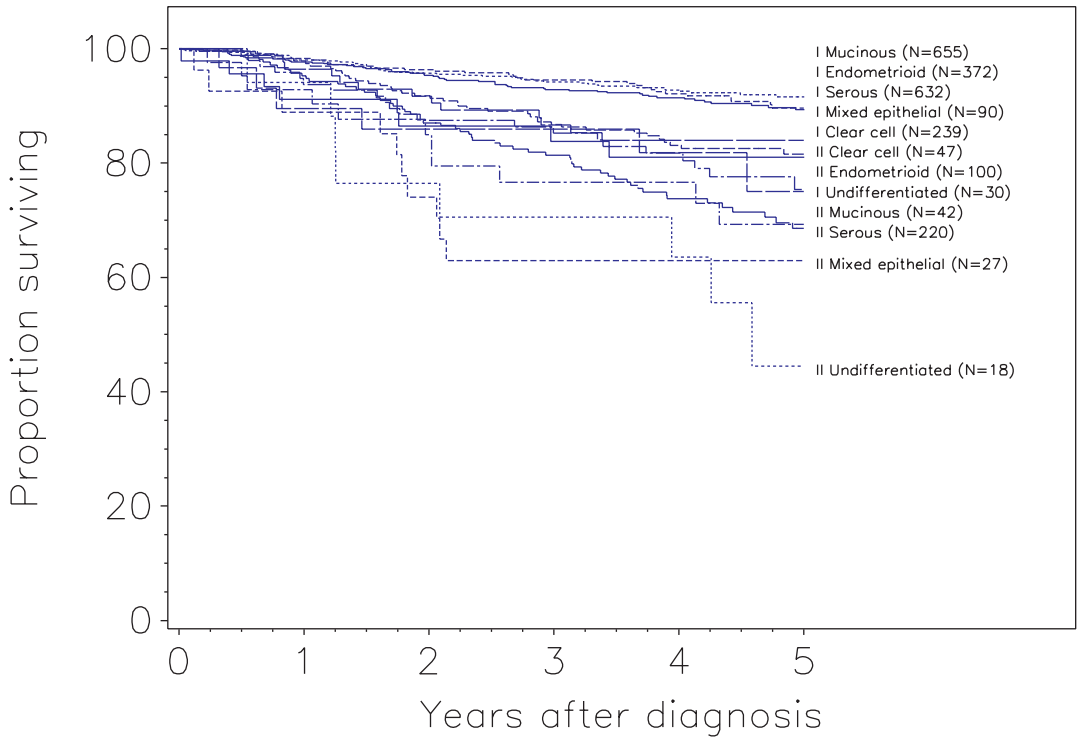
Fig. 14. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I–II patients by histologic type, $n = 2537$.



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	2111	60.0	85.9	65.2	51.2	39.0	31.9	Reference
Mucinous	222	56.2	69.7	47.7	38.6	34.0	31.1	1.3 (1.1–1.6)
Endometrioid	343	58.5	84.0	66.9	54.4	45.5	37.0	0.9 (0.8–1.1)
Clear cell	156	56.7	68.6	50.8	38.5	30.5	23.9	1.5 (1.2–1.8)
Undifferentiated	193	60.6	75.5	53.5	39.5	35.0	29.5	1.2 (1.0–1.4)
Mixed epithelial	135	58.5	79.5	58.9	43.6	35.8	34.2	1.0 (0.8–1.3)

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

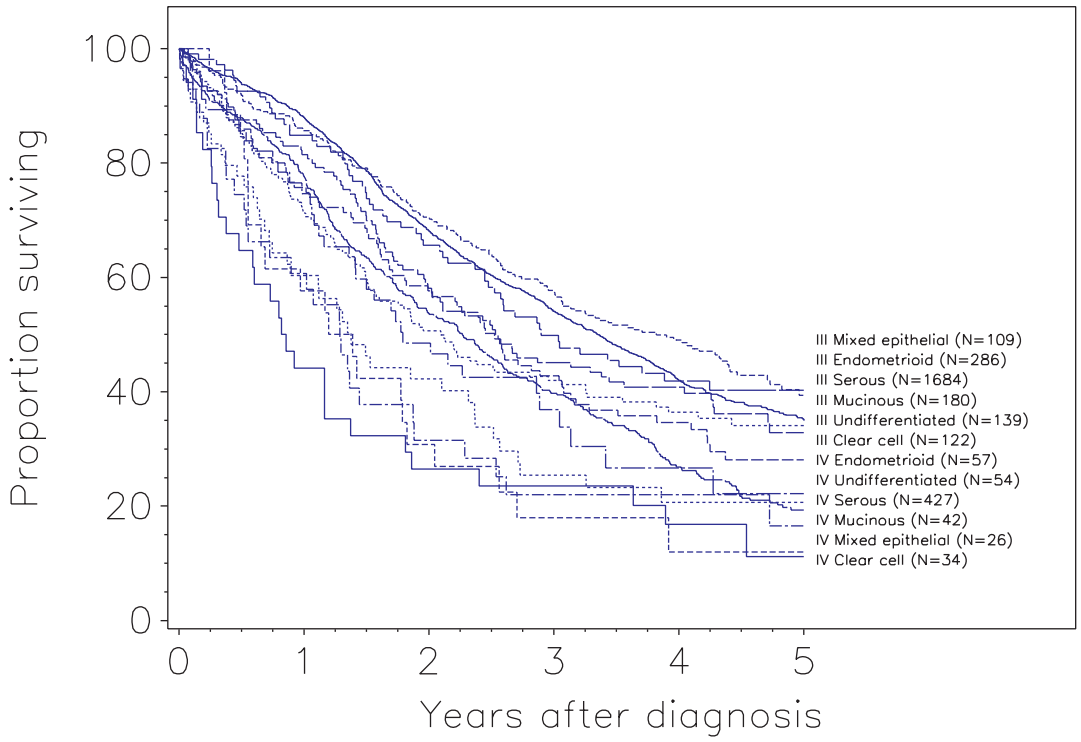
Fig. 15. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage III–IV patients by histologic type, $n = 3314$.



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	632	53.9	97.7	95.4	92.9	91.4	89.3	Reference
I Mucinous	655	48.7	98.1	95.7	94.3	92.8	91.5	0.9 (0.6–1.3)
I Endometrioid	372	53.2	98.4	96.4	94.6	92.2	89.7	0.9 (0.6–1.4)
I Clear cell	239	53.8	97.9	91.8	86.8	83.2	81.7	1.8 (1.2–2.7)
I Undifferentiated	30	50.6	89.7	86.1	86.1	82.1	76.4	2.5 (1.0–5.8)
I Mixed epithelial	90	49.6	96.6	91.8	86.7	83.7	83.7	1.7 (0.9–3.2)
II Serous	220	57.3	95.3	87.1	81.6	73.6	68.8	4.2 (2.7–6.4)
II Mucinous	42	55.3	92.7	84.9	76.5	76.5	68.7	4.0 (2.0–8.0)
II Endometrioid	100	53.9	93.9	87.5	85.3	81.8	75.0	3.6 (2.0–6.4)
II Clear cell	47	55.8	91.2	86.6	84.1	81.0	81.0	2.7 (1.3–5.8)
II Undifferentiated	18	58.1	94.3	76.6	70.5	63.8	45.5	8.1 (3.5–18.4)
II Mixed epithelial	27	50.5	88.9	74.1	63.0	63.0	63.0	6.9 (3.4–13.9)

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

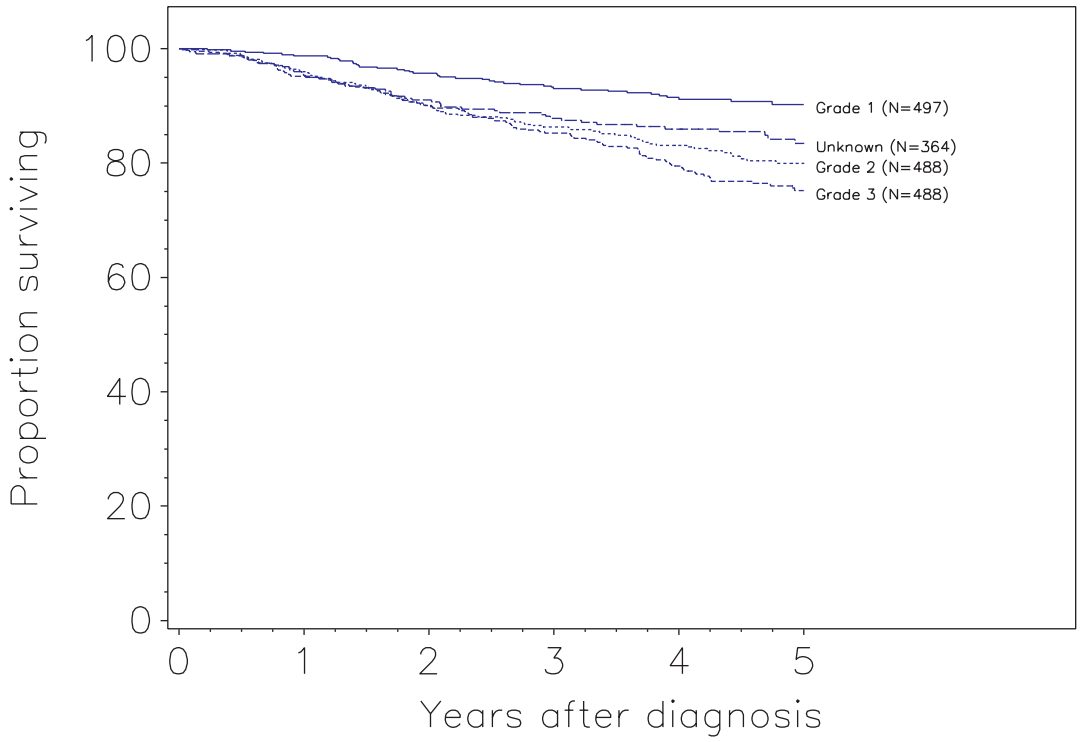
Fig. 16. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I–II patients by stage and histologic type, $n = 2472$.



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	1684	59.7	87.9	68.1	54.1	42.0	35.1	Reference
III Mucinous	180	57.2	71.5	51.1	42.2	36.5	34.1	1.3 (1.0–1.6)
III Endometrioid	286	58.3	85.8	70.6	57.8	48.9	39.8	0.9 (0.8–1.1)
III Clear cell	122	56.7	75.6	57.8	42.8	34.3	27.0	1.6 (1.2–2.0)
III Undifferentiated	139	60.5	81.5	58.0	45.0	40.5	32.9	1.2 (0.9–1.5)
III Mixed epithelial	109	57.1	84.9	65.9	50.0	41.4	39.5	1.0 (0.7–1.2)
IV Serous	427	61.2	77.8	53.8	39.8	26.9	19.2	2.2 (1.7–2.9)
IV Mucinous	42	52.3	62.0	32.5	22.2	22.2	17.3	4.0 (2.6–6.3)
IV Endometrioid	57	59.5	74.8	48.3	36.8	26.3	21.0	2.4 (1.6–3.6)
IV Clear cell	34	56.5	44.1	26.5	23.5	17.3	12.9	3.6 (2.3–5.5)
IV Undifferentiated	54	60.7	60.0	42.0	25.6	21.0	21.0	3.3 (2.2–4.9)
IV Mixed epithelial	26	64.3	57.7	30.8	18.5	13.2	13.2	3.9 (2.4–6.4)

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

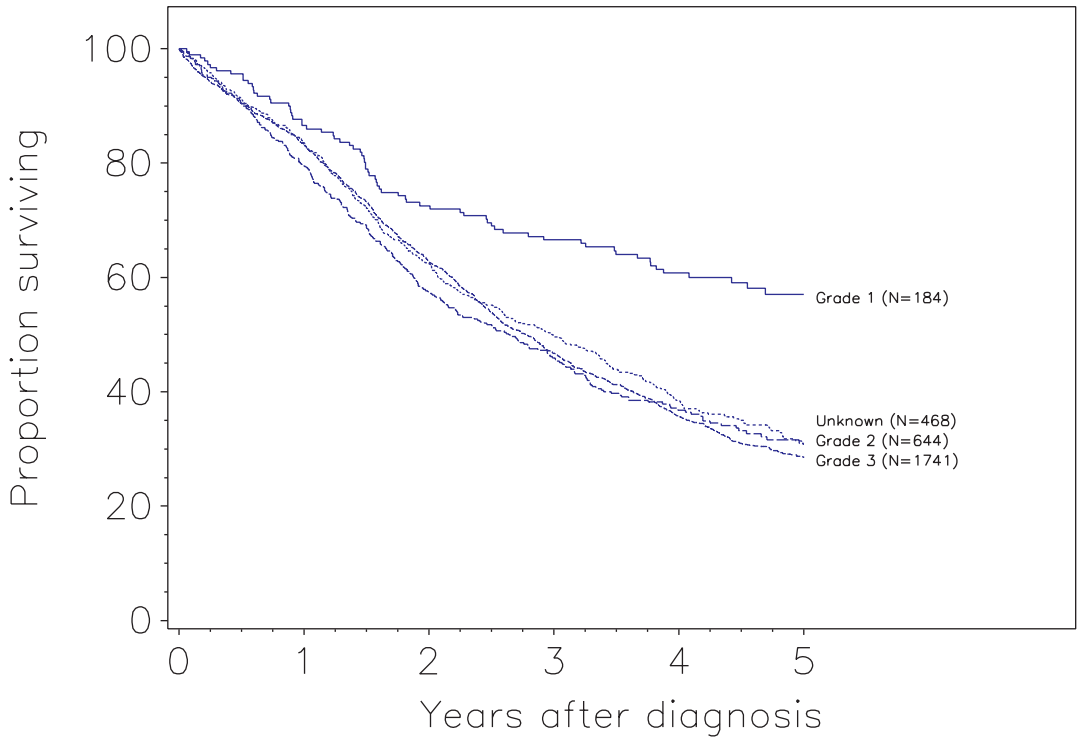
Fig. 17. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage III–IV patients by stage and histologic type, $n = 3160$.



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	497	51.1	98.8	95.7	93.1	91.5	90.3	Reference
Grade 2	488	55.4	96.0	90.1	86.3	83.1	79.7	1.9 (1.3–2.8)
Grade 3	488	57.8	95.2	90.1	85.4	79.5	75.0	1.9 (1.3–2.7)
Grade unknown	364	49.4	95.4	91.1	87.9	86.0	83.8	1.7 (1.1–2.6)

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

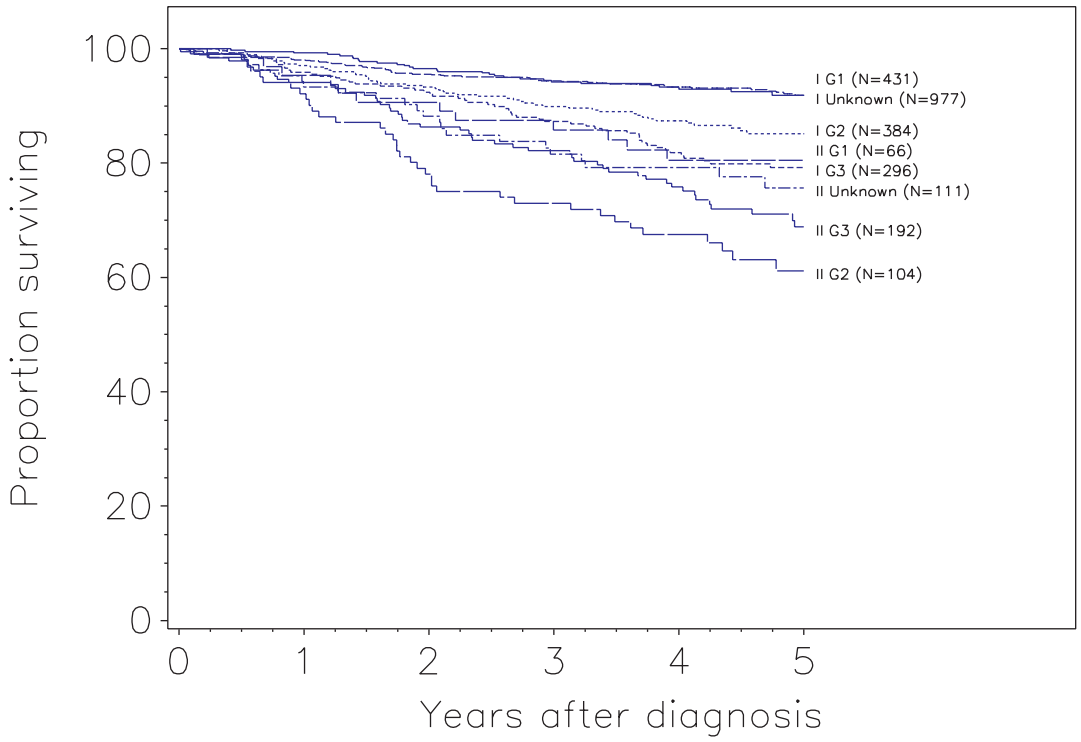
Fig. 18. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I–II patients by grade of differentiation, $n = 1837$.



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	184	53.3	86.6	72.7	66.7	60.8	57.2	Reference
Grade 2	644	59.5	83.6	62.4	50.0	38.5	31.0	1.8 (1.4–2.3)
Grade 3	1741	60.7	83.2	62.8	46.8	35.6	28.5	1.8 (1.4–2.3)
Grade unknown	468	57.5	79.5	57.6	46.1	36.7	31.0	2.1 (1.6–2.7)

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

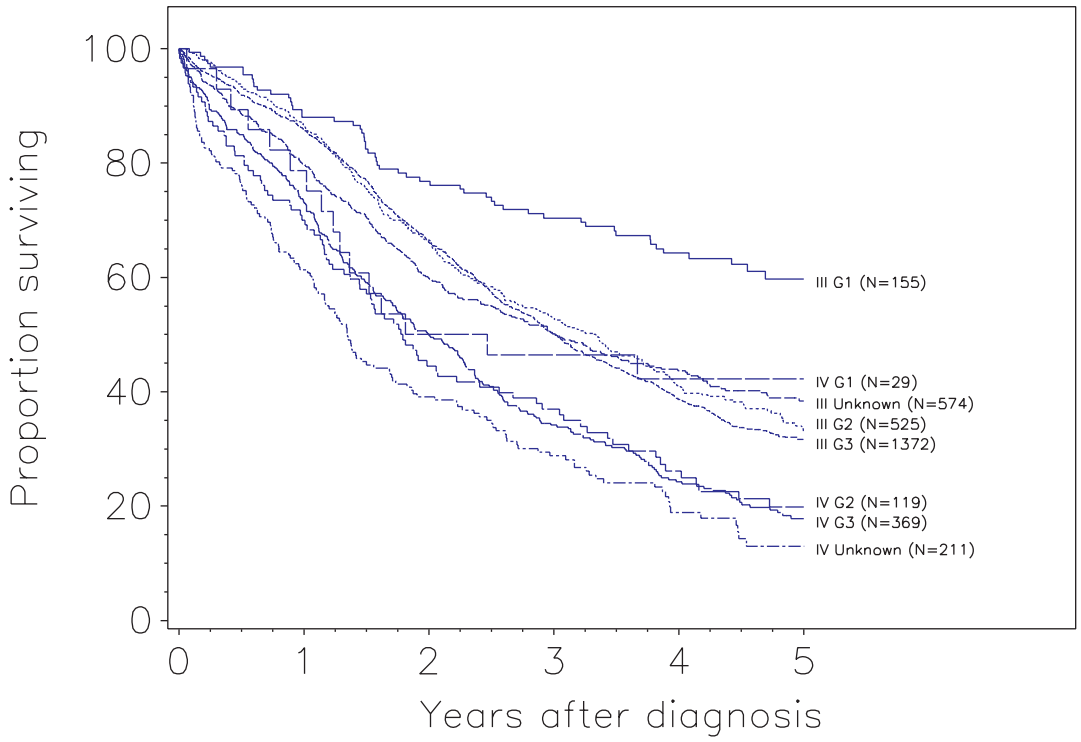
Fig. 19. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage III–IV patients by grade of differentiation, $n = 3037$.



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	431	50.8	99.3	96.5	94.2	93.3	91.9	Reference
I G2	384	54.8	97.1	93.3	89.9	87.3	85.0	1.7 (1.1–2.6)
I G3	296	57.1	95.9	92.4	87.3	81.9	79.0	2.1 (1.3–3.2)
I Unknown	977	49.2	98.1	95.6	94.4	93.3	92.0	1.0 (0.7–1.6)
II G1	66	53.3	95.3	90.6	85.7	80.3	80.3	3.3 (1.6–6.7)
II G2	104	57.6	92.2	78.1	72.9	67.4	61.0	7.7 (4.5–13.3)
II G3	192	59.0	94.1	86.4	82.3	75.8	68.9	5.2 (3.1–8.5)
II Unknown	111	50.4	93.4	88.3	81.8	79.3	75.8	4.2 (2.3–7.4)

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

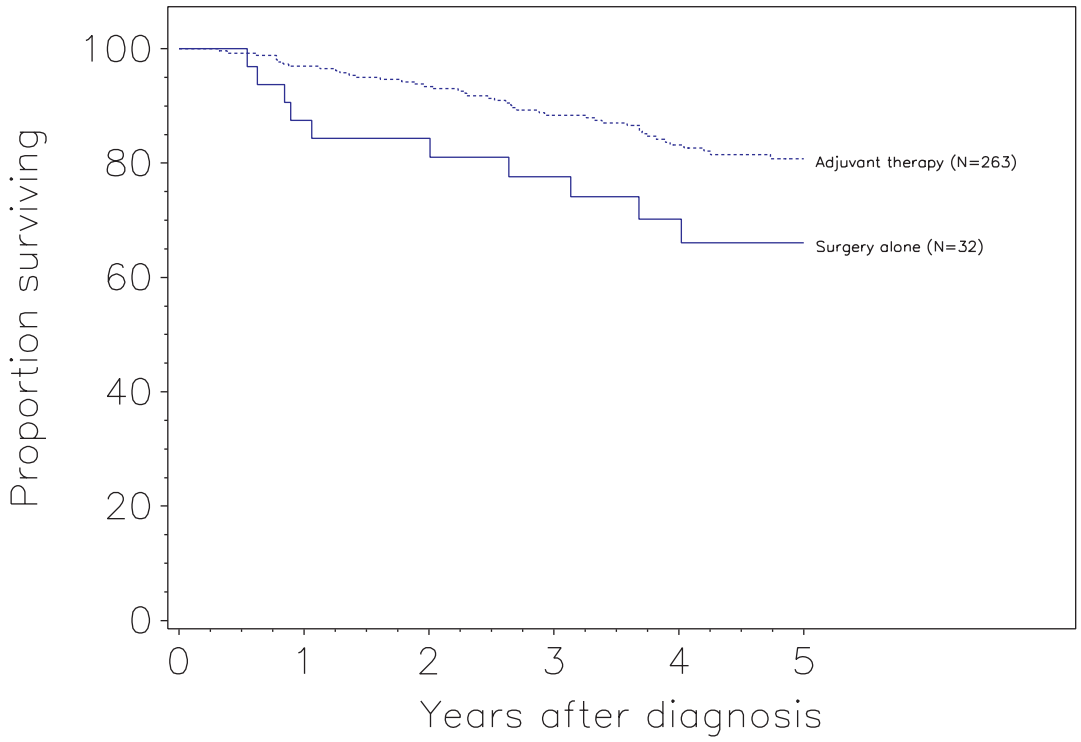
Fig. 20. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I–II patients by stage and grade of differentiation, $n = 2561$.



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	155	53.9	88.1	77.0	70.5	64.2	59.9	Reference
III G2	525	59.0	86.6	66.5	52.9	41.2	33.7	1.8 (1.3–2.4)
III G3	1372	60.6	85.9	66.2	50.1	38.6	31.4	1.8 (1.4–2.4)
III Unknown	574	57.5	79.7	60.0	50.2	43.6	38.3	2.0 (1.5–2.6)
IV G1	29	50.1	78.9	50.2	46.7	42.8	42.8	2.9 (1.6–5.3)
IV G2	119	61.2	70.2	44.4	36.9	26.3	19.0	4.2 (2.8–6.2)
IV G3	369	61.2	73.1	50.1	34.1	24.3	17.7	4.1 (2.8–5.8)
IV Unknown	211	61.3	61.6	39.3	29.0	19.1	13.1	5.4 (3.7–7.8)

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

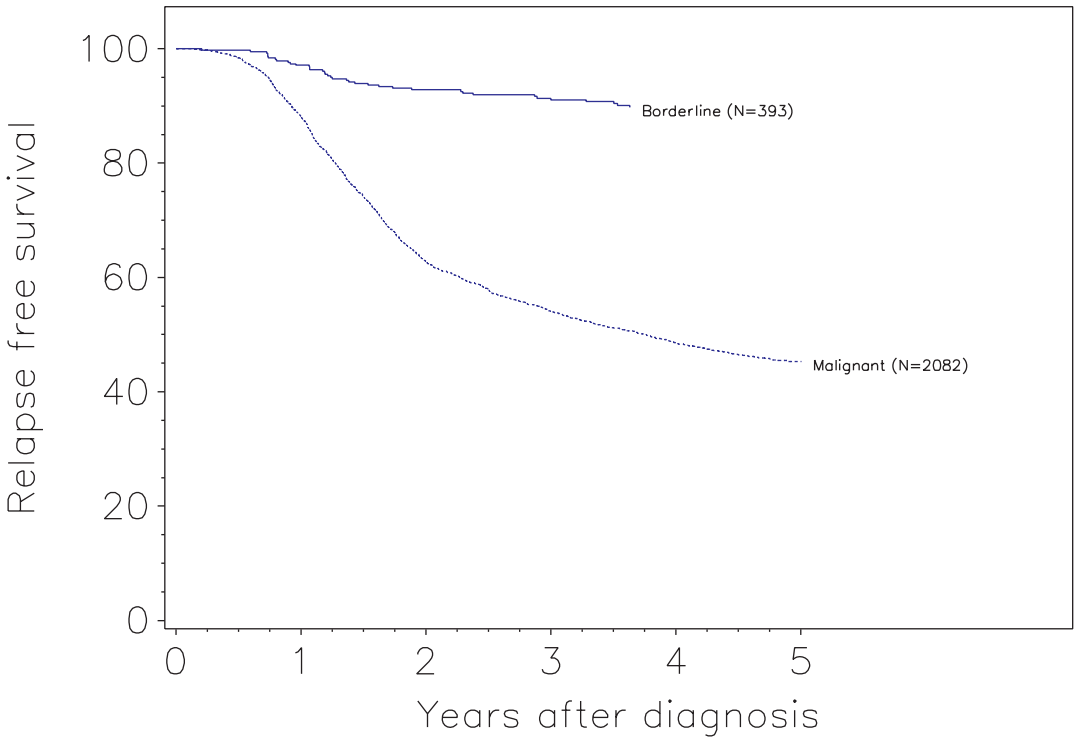
Fig. 21. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage III–IV patients by stage and grade of differentiation, $n = 3354$.



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	32	62.8	87.5	84.3	77.5	70.1	65.3	Reference
Adjuvant therapy	263	56.3	96.9	93.4	88.4	83.3	80.6	0.4 (0.2–1.0)

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

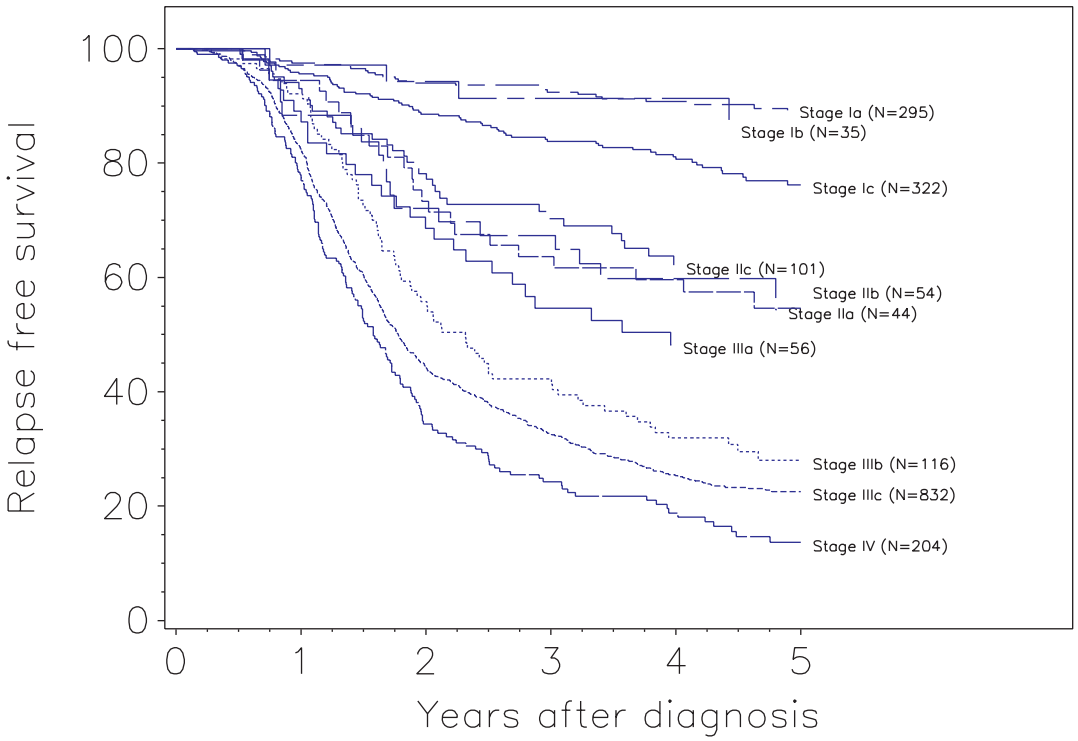
Fig. 22. Carcinoma of the ovary: patients treated in 1999–2001. Survival in Stage I Grade 3 patients by mode of treatment, $n = 295$.



Treatment	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	393	48.5	97.2	92.8	91.4	89.7	89.7	Reference
Malignant	2082	56.0	88.2	62.8	54.2	48.5	45.1	1.9 (1.3–2.7)

[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 1999–2001. Relapse-free survival by histology, $n = 2475$.



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	295	52.1	97.6	94.0	92.5	90.8	88.9	Reference
Ib	35	54.5	97.1	94.2	91.3	91.3	86.8	1.1 (0.4–3.0)
Ic	322	52.6	95.6	88.6	83.9	81.1	76.1	2.3 (1.5–3.6)
IIa	44	54.6	88.5	72.2	67.4	59.5	55.5	4.4 (2.4–8.0)
IIb	54	56.8	94.4	73.4	63.8	59.8	53.9	4.8 (2.8–8.3)
IIc	101	55.9	93.1	78.1	70.3	61.9	61.9	4.1 (2.5–6.7)
IIIa	56	54.8	87.3	68.5	54.6	48.2	48.2	6.3 (3.7–10.8)
IIIb	116	55.9	92.1	55.6	42.0	31.6	27.9	10.3 (6.7–15.9)
IIIc	832	58.5	82.4	44.5	32.7	25.3	22.4	12.7 (8.7–18.7)
IV	204	57.9	77.4	34.5	24.3	19.0	13.7	16.1 (10.7–24.1)

[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 1999–2001. Relapse-free survival by FIGO stage, obviously malignant, $n = 2059$.

Table 16
Carcinoma of the ovary: Patients treated in 1999–2001. 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+	1.48 (1.09–2.00)	1.85 (1.14–3.00)	1.50 (1.31–1.72)	1.01 (0.79–1.28)
Histological type				
Serous	Reference	Reference	Reference	Reference
Mucinous	1.00 (0.66–1.50)	0.97 (0.49–1.93)	1.43 (1.15–1.78)	1.42 (0.93–2.16)
Endometrioid	0.88 (0.57–1.36)	0.68 (0.40–1.17)	0.94 (0.79–1.12)	0.89 (0.62–1.28)
Clear cell	1.59 (1.04–2.44)	0.70 (0.33–1.46)	1.55 (1.22–1.97)	1.91 (1.25–2.93)
Undifferentiated	1.69 (0.69–4.13)	1.94 (0.81–4.64)	1.29 (1.02–1.63)	1.23 (0.87–1.75)
Mixed epithelial	1.45 (0.78–2.72)	1.70 (0.82–3.53)	1.03 (0.79–1.35)	1.70 (1.06–2.72)
No histology	1.27 (0.56–2.85)	0.55 (0.19–1.61)	1.36 (1.05–1.76)	1.22 (0.87–1.72)
Grade				
Grade 1	Reference	Reference	Reference	Reference
Grade 2	1.90 (1.20–3.00)	2.98 (1.46–6.11)	1.82 (1.36–2.44)	1.86 (1.05–3.28)
Grade 3	2.35 (1.46–3.78)	1.76 (0.87–3.55)	1.87 (1.41–2.47)	1.91 (1.10–3.32)
Grade unknown	0.99 (0.63–1.56)	1.65 (0.77–3.54)	1.69 (1.26–2.28)	2.06 (1.16–3.67)
Sub-stage				
Ia	Reference	–	–	–
Ib	1.71 (0.95–3.09)	–	–	–
Ic	2.07 (1.48–2.88)	–	–	–
IIa	–	Reference	–	–
IIb	–	1.17 (0.62–2.21)	–	–
IIc	–	1.02 (0.57–1.82)	–	–
Residual disease				
No micro or macro residuals	Reference	Reference	Reference	Reference
⩽2–cm	1.95 (0.72–5.24)	1.59 (0.86–2.94)	2.30 (1.90–2.78)	2.56 (1.64–3.97)
>2 cm	2.16 (0.60–7.71)	2.59 (1.28–5.27)	2.95 (2.45–3.56)	2.67 (1.79–3.97)
Residual disease unknown	0.78 (0.53–1.13)	0.82 (0.48–1.38)	2.79 (2.30–3.38)	2.88 (1.90–4.37)
Adjuvant therapy				
Surgery alone	Reference	Reference	Reference	Reference
Adjuvant therapy	0.85 (0.57–1.25)	0.57 (0.28–1.14)	0.50 (0.40–0.62)	0.31 (0.22–0.44)
Other	1.15 (0.38–3.52)	2.25 (0.80–6.37)	0.70 (0.54–0.90)	0.52 (0.36–0.74)

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