LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

TUMORREGISTER MÜNCHEN (TRM)
BAYERISCHES KREBSREGISTER (LGL) – REGIONALZENTRUM MÜNCHEN
INSTITUT FÜR MEDIZINISCHE INFORMATIONSVERARBEITUNG, BIOMETRIE UND
EPIDEMIOLOGIE (IBE)
AM KLINIKUM GROSSHADERN, MÜNCHEN

Prognostic factors and outcome of invasive cervical cancer patients (2007-2016): a population-based analysis

M. Rottmann, G. Schubert-Fritschle, J. Engel

Munich Cancer Registry (MCR), Bavarian Cancer Registry - Regional Centre Munich (LGL) at the Institute for Medical Information Processing, Biometry and Epidemiology (IBE), University Hospital, Munich, Germany

Introduction

The objective of this study was to analyse prognostic factors and outcomes of invasive cervical cancer in a population-based setting.

Methods

The Munich Cancer Registry (MCR) is the population based clinical cancer registry of Upper Bavaria and a part of Lower Bavaria (Southern Germany), with a catchment area of 4.9 million inhabitants.

Fig. 1: Catchment area of the Munich Cancer Registry (MCR)

2,291 cervical cancer patients diagnosed between 2007 and 2016 were analysed regarding prognostic factors and outcomes. Cumulative incidence was used to calculate time to recurrence and distant metastases. Overall survival (OS) was assessed using the Kaplan–Meier method.
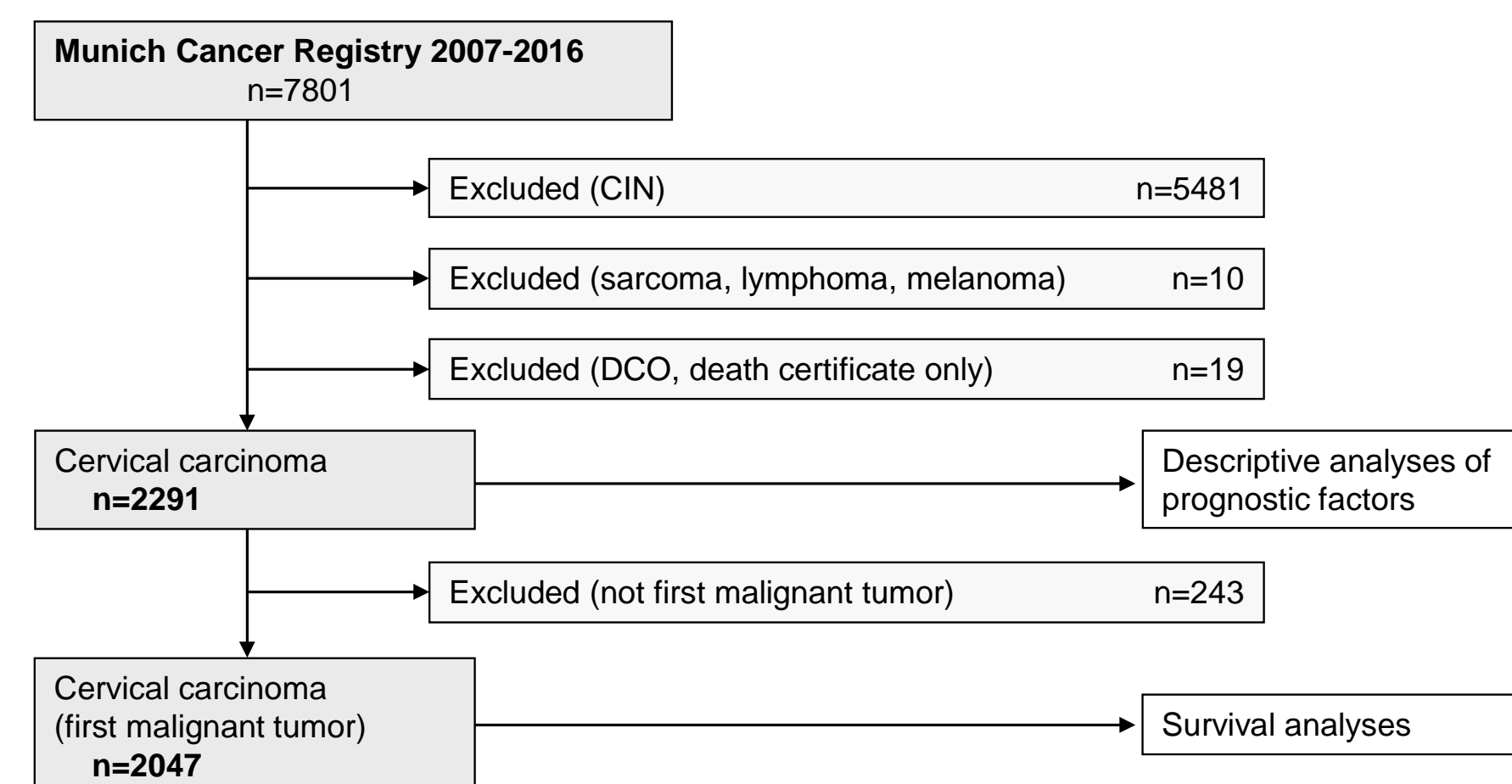

Fig. 2: Flow chart of cervical cancer patients

Results

Table 1: Patients' and tumour characteristics

Age		
Mean / Median	52.7 / 50.2	
Histology	**n**	**%**
Squamous cell	1703	74,3
Adeno	438	19,2
Others	150	6,6
Stage	**n**	**%**
IA1	341	16.2
IA2	66	3.1
IB1	622	29.5
IB2	142	6.7
IIA	92	4.4
IIB	311	14.7
III/IV	236	11.2
M1	301	14.3
Missing	*180*	*7.9*
Lymph node involvement	**n**	**%**
N0	1689	73.7
N+	602	26.3

The median age of patients diagnosed with cervical cancer is 50.2 years. The majority of the patients is diagnosed with a histology of squamous cell cancer at stage IA or IB. 26.3% present with lymph node involvement at the time of diagnosis, 14.3% with distant metastases (Table 1). The percentage of lymph node involvement, histopathological grading G3, lymphovascular invasion (L1/V1), perineural invasion (Pn) and residual tumour (R1) increases with stage (Table 2).

Table 2: Prognostic factors (patients who underwent surgery)

pT	n	%	N1	G3	L1	V1	Pn	R1
1a1	200	15.1	0	20.5	5.0	0	0	1.5
1a2	61	4.6	3.3	27.9	14.8	0	0	1.6
1b1	582	44.1	12.2	44.3	28.0	3.3	1.6	2.9
1b2	117	8.9	19.7	52.1	37.6	12.8	2.6	3.4
2a	71	5.4	42.3	57.8	43.7	14.1	5.4	14.1
2b	212	16.1	43.9	54.3	55.7	27.8	14.6	15.1
3/4	22	1.7	45.5	50.0	72.7	9.1	13.6	40.9
M1	56	4.2	48.2	71.4	51.8	16.1	7.1	23.2
Total	**1321**	**100**	**19.4**	**44.2**	**31.8**	**8.6**	**4.1**	**6.7**

The 5- year overall and relative survival rates are 67.9% and 70.1%, respectively (Fig. 3).
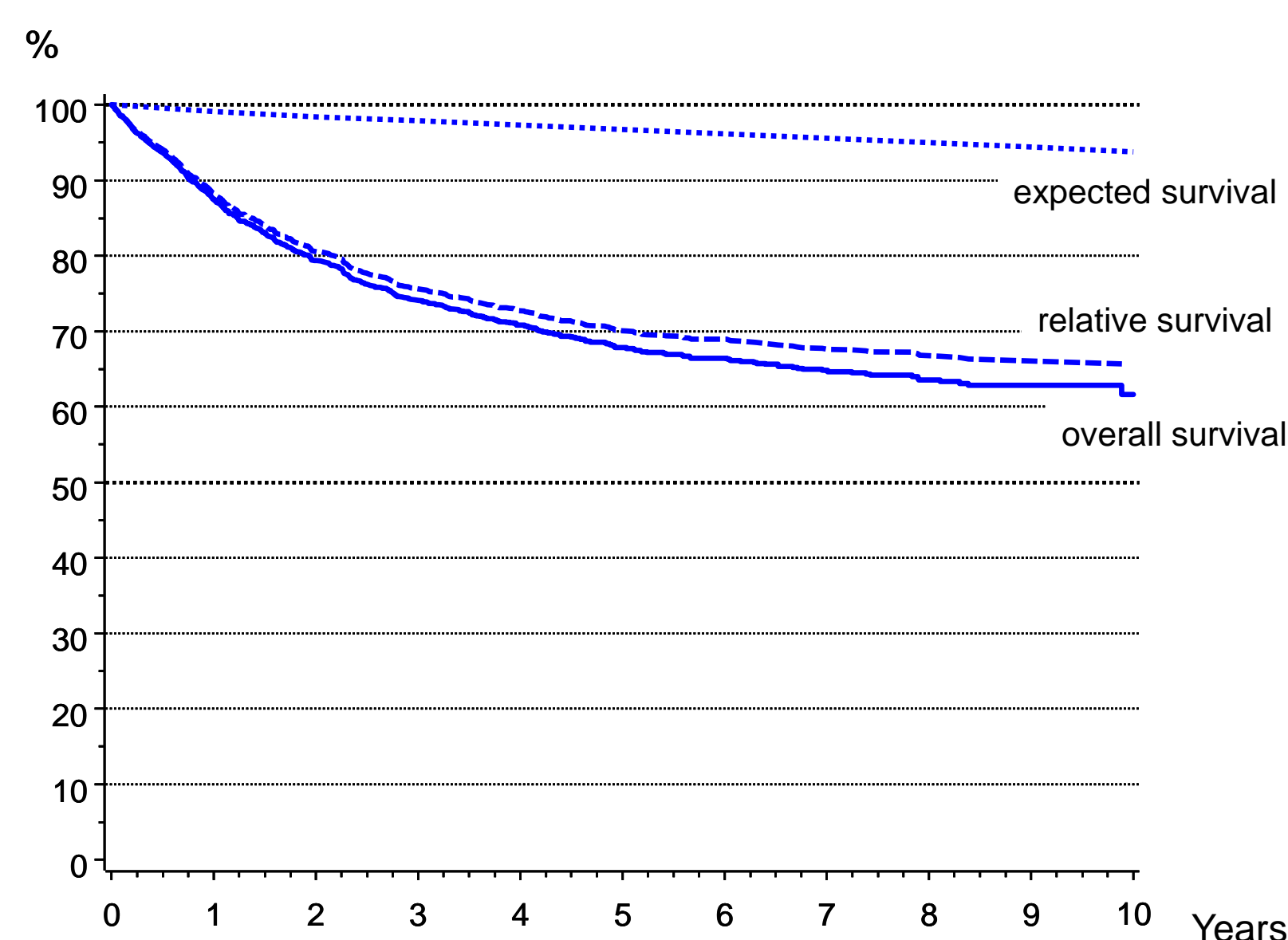

Fig. 3: Overall, relative and expected survival

5-year overall survival rates differed from 87.1% in patients younger than 40 years to 30.4% in patients older than 69 years (Fig. 4).
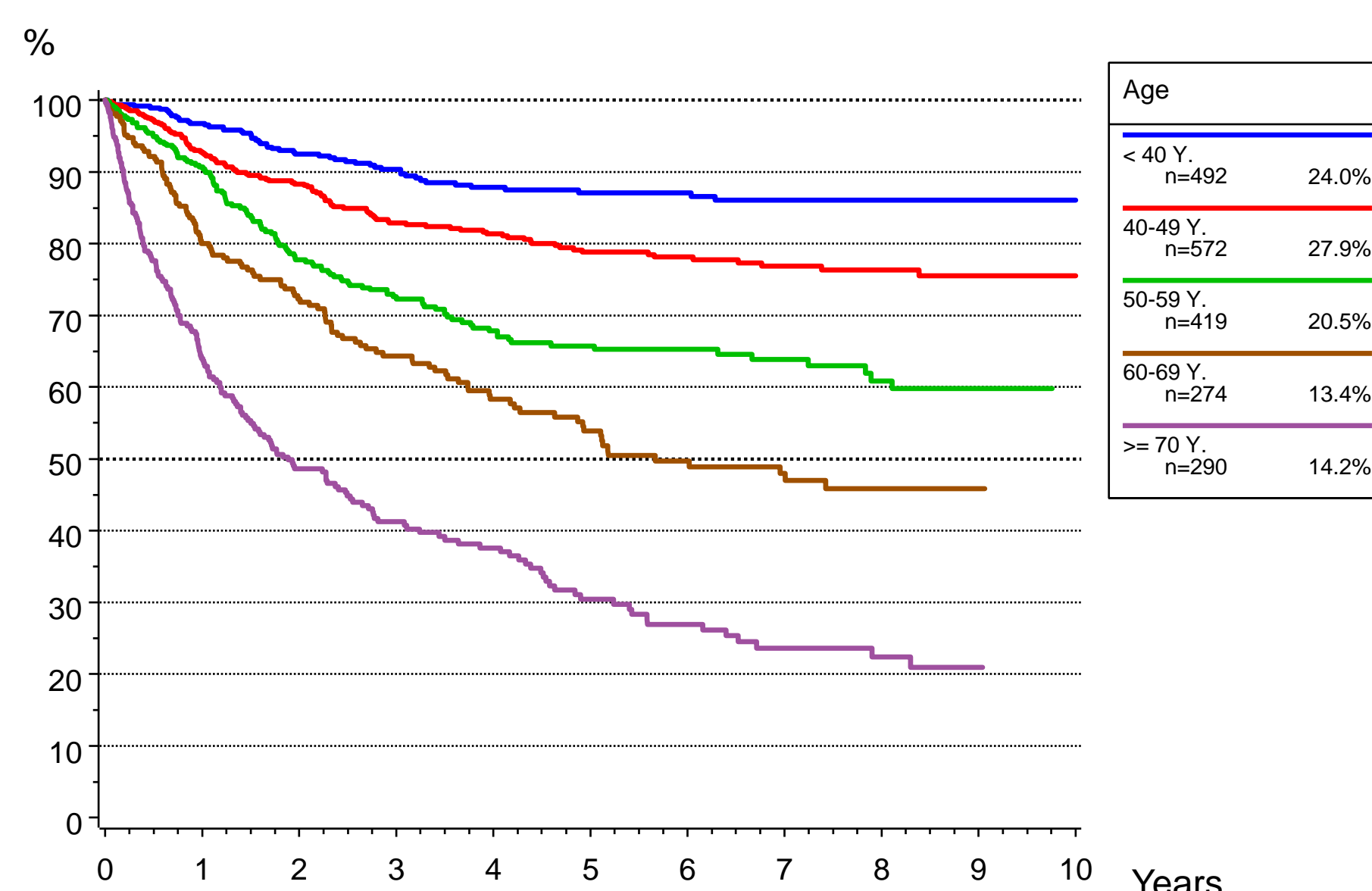

Fig. 4: Overall survival based on age

5-year overall survival rates differed from 98.9% in stage 1A1 to 16.6% in patients diagnosed with distant metastases at time of diagnosis (Fig. 5).
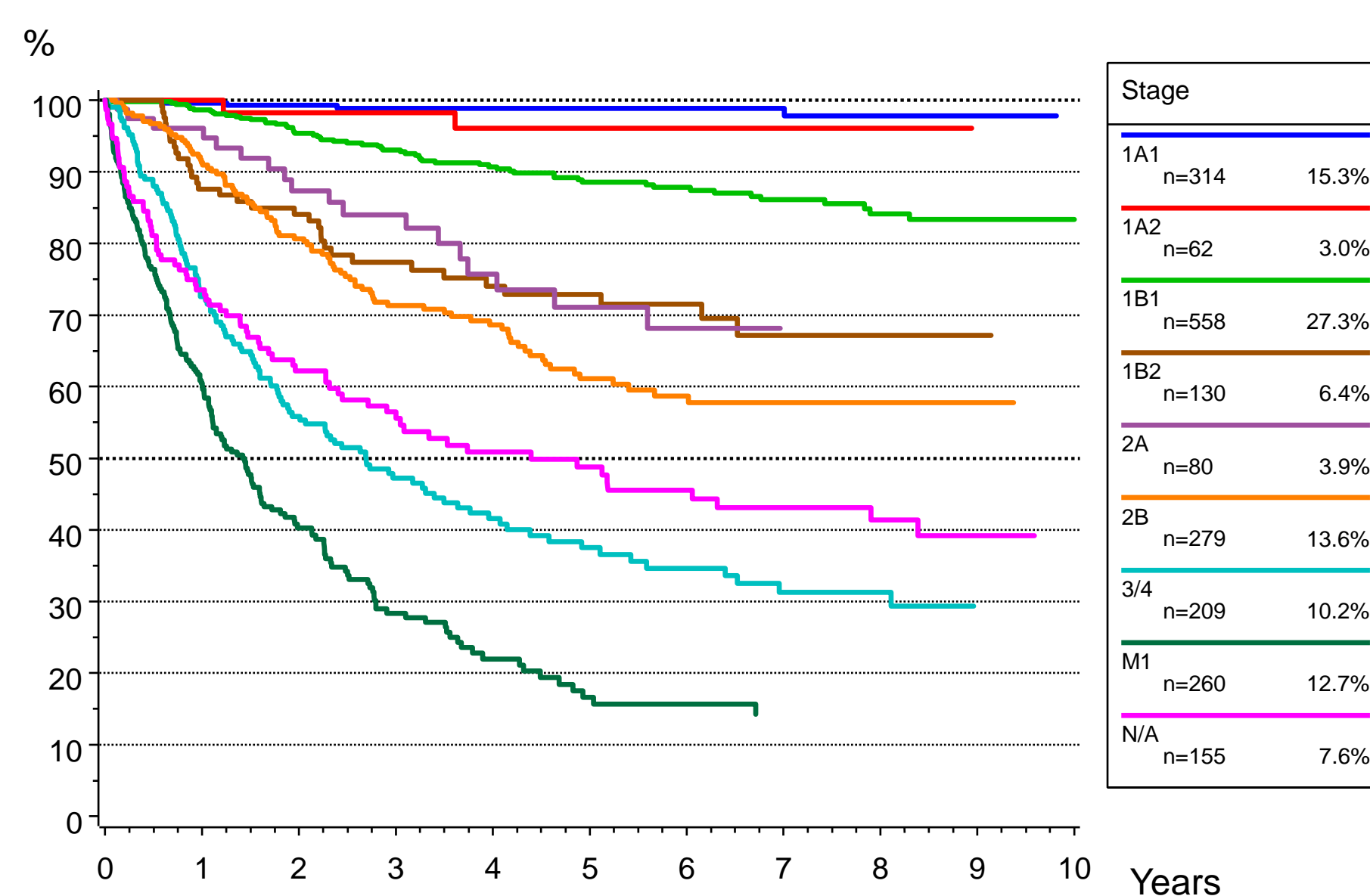

Fig. 5: Overall survival based on stage (pT/cT)

Patients diagnosed with lymph node involvement have a worse prognosis compared to patients diagnosed without lymph node involvement (5-year OS: pT1b: 87.9 vs. 79.3%, pT2: 76.6 vs 61.6%) (Fig. 6).
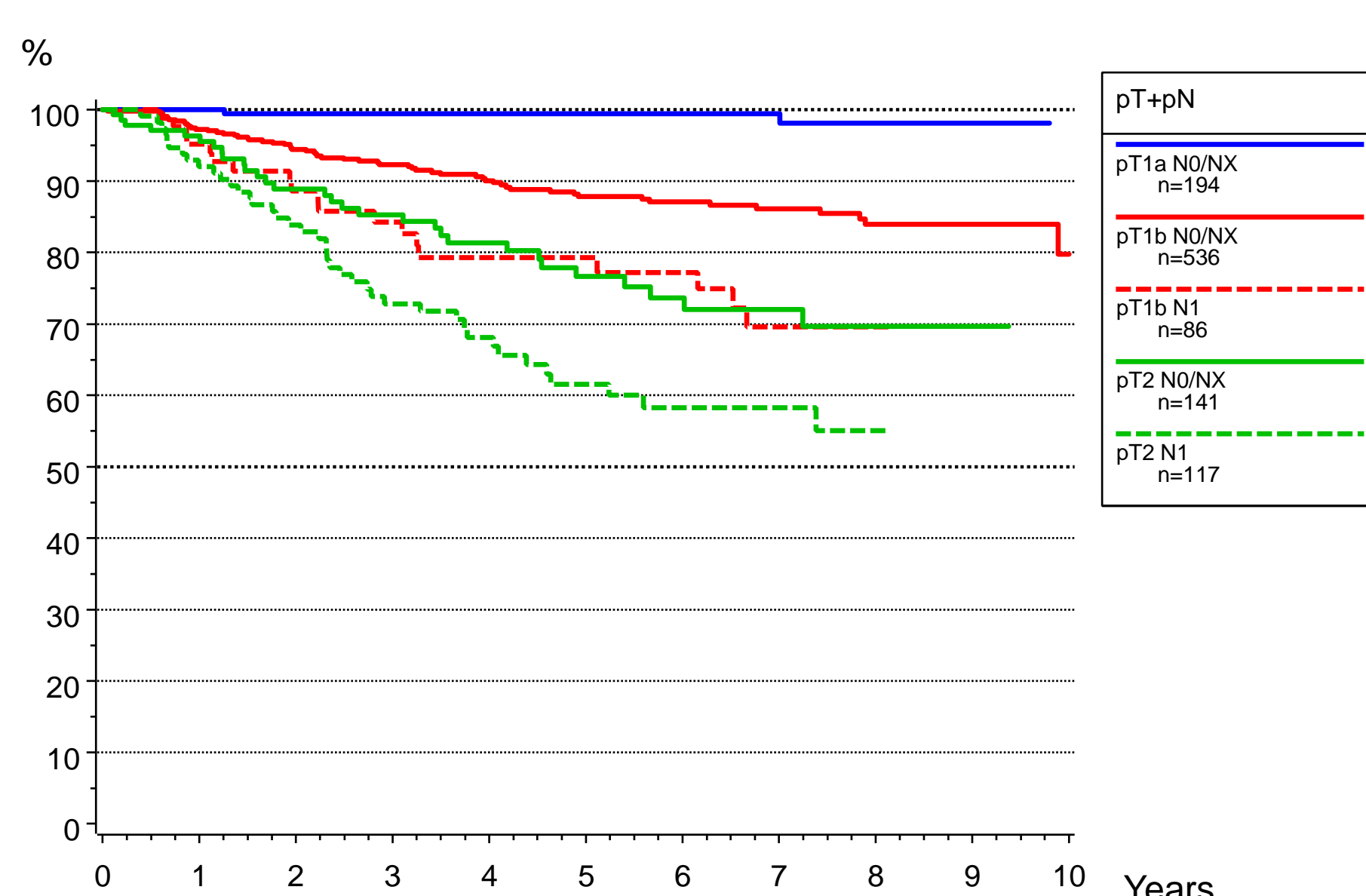

Fig. 6: Overall survival based on pT and pN (patients who underwent surgery)
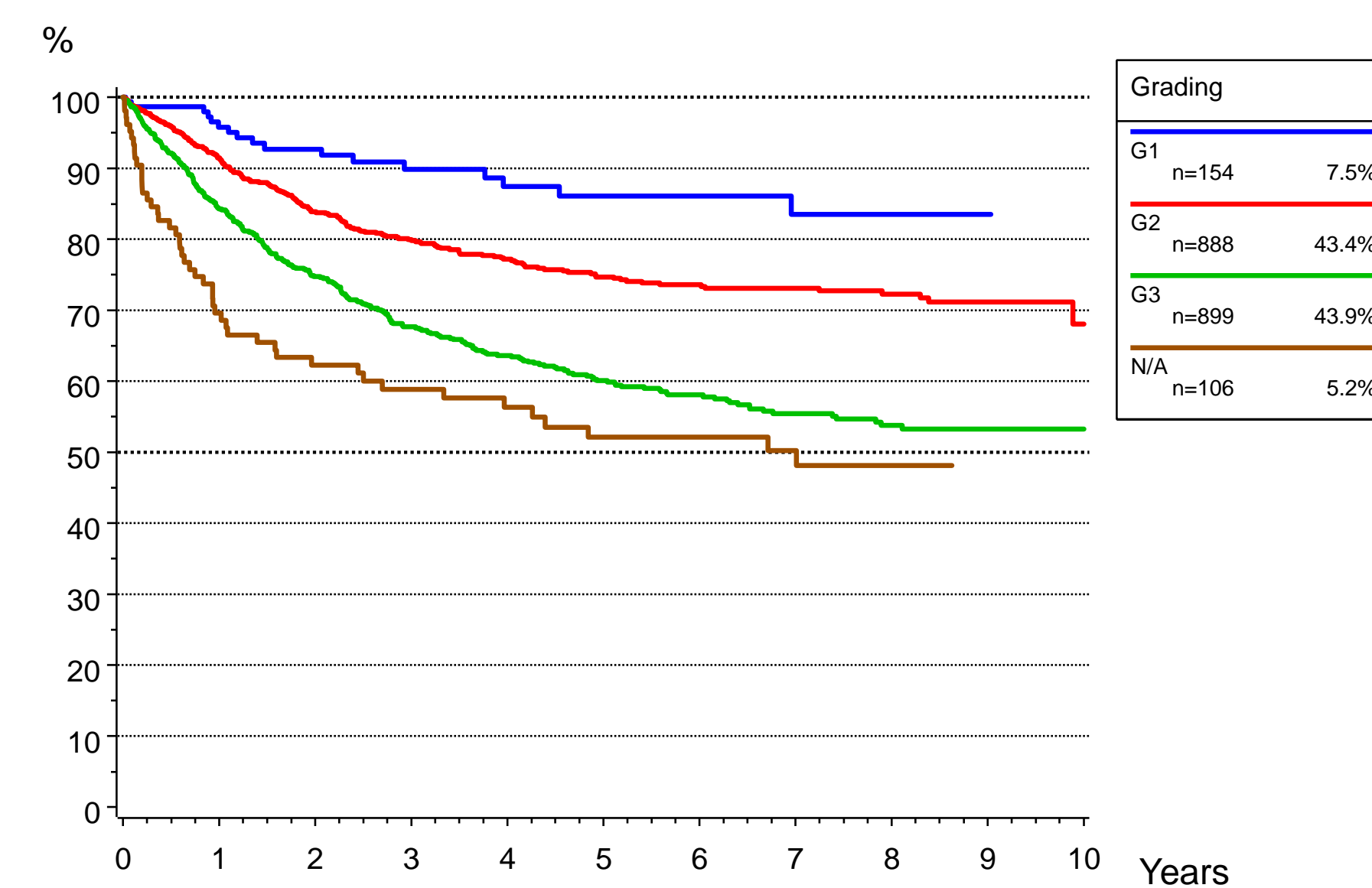

Fig. 7: Overall survival based on grading

There is no difference in overall survival between patients diagnosed with a squamous cell carcinoma compared to those diagnosed with an adeno carcinoma (5-year OS: 68.9% vs 68.8%) (Fig. 8).
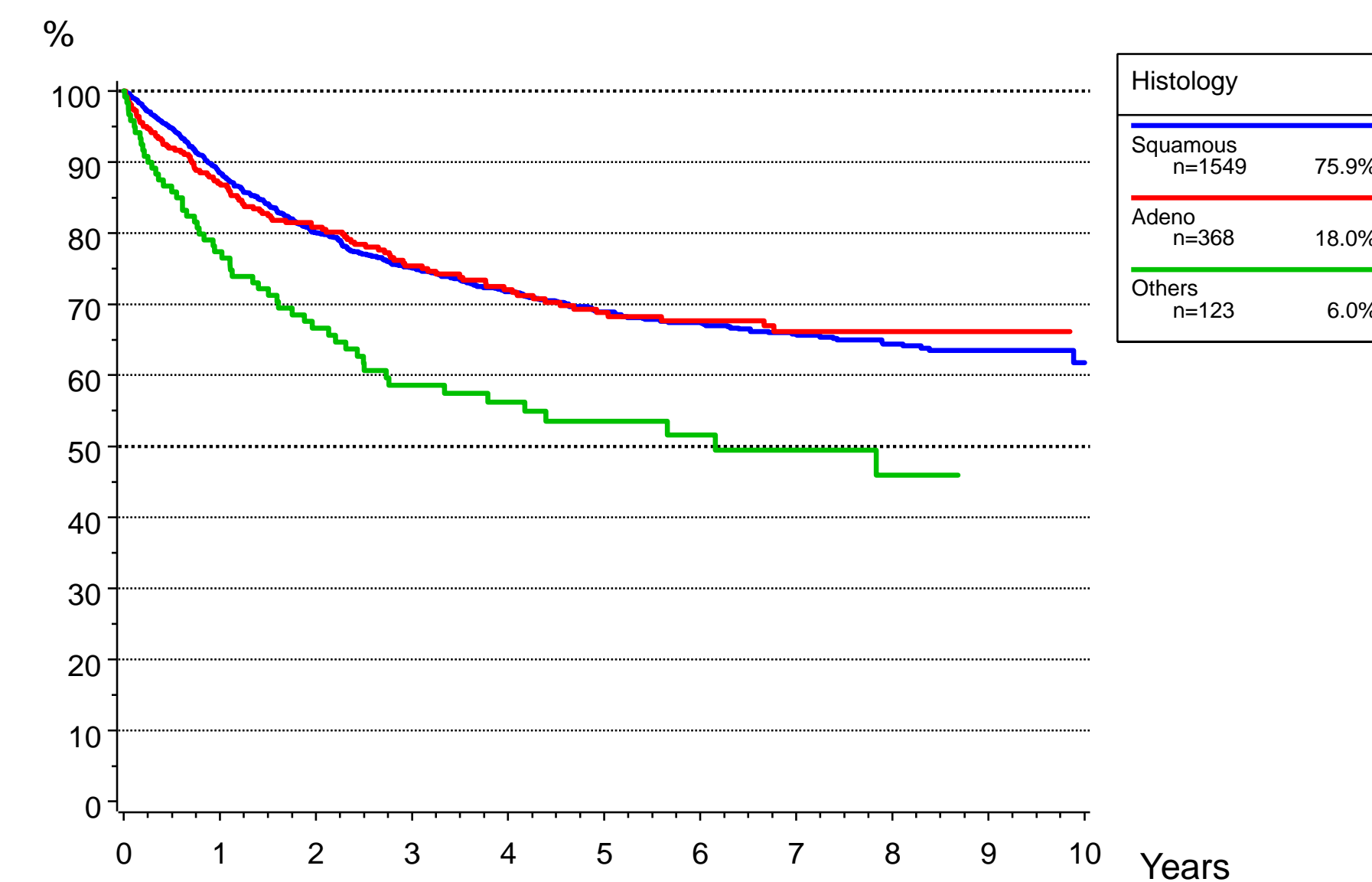

Fig. 8: Overall survival based on histology

The analysis of time to locoregional recurrence and metastasis (M0-patients) showed a resp. 5-year cumulative incidence rate of 10.0 % and 13.1% (Fig. 9).
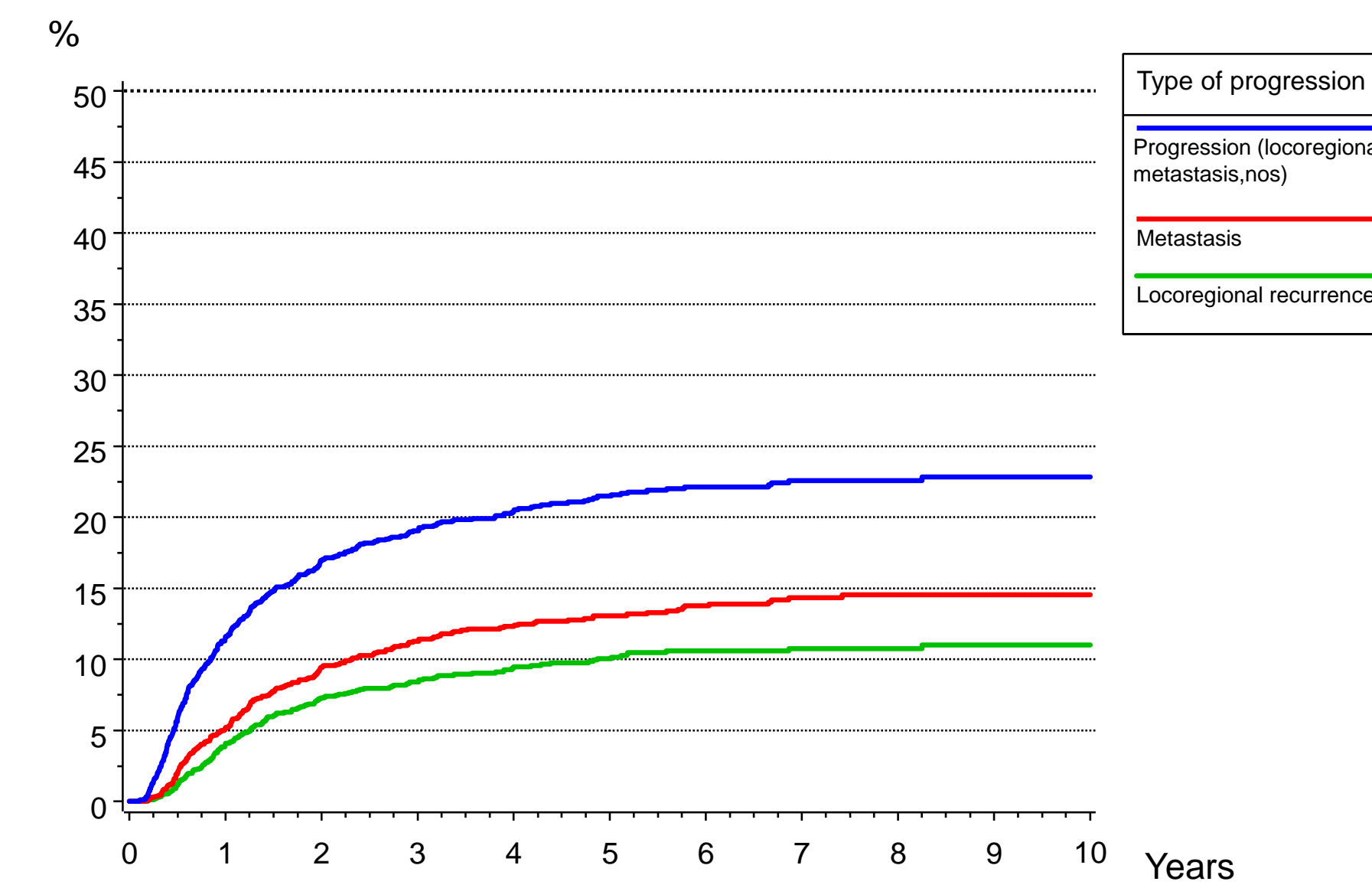

Fig. 9: Time to progression (cumulative incidence) by type of progression (locoregional recurrence, metastasis)

There is no difference in OS between patients diagnosed 2007-2011 compared to those diagnosed 2012-2016 (5-year OS: 67.2% vs 67.3%) (Fig. 10).
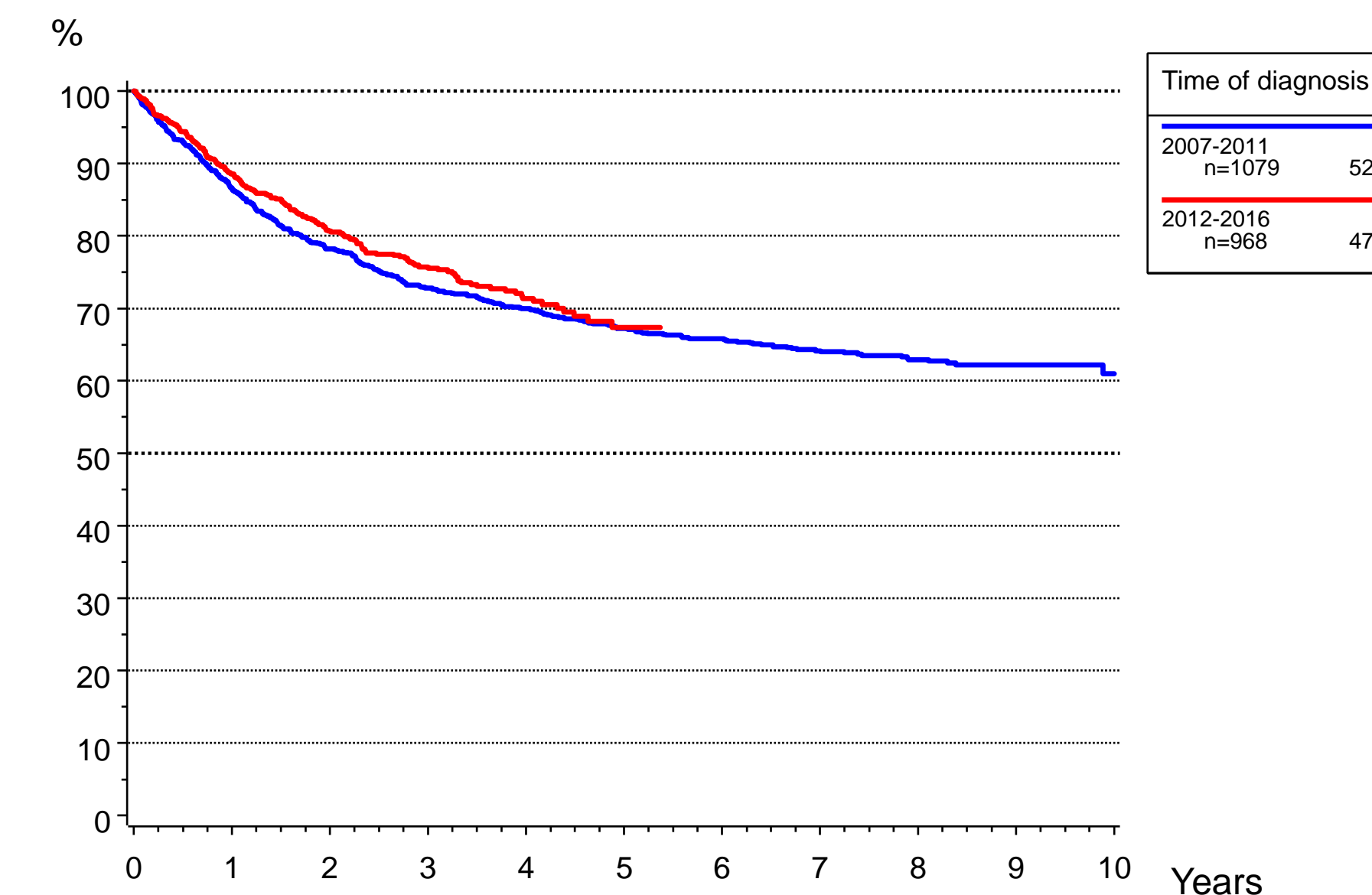

Fig. 10: Overall survival based on time of diagnosis

Conclusions

The prognosis in cervical cancer is comparatively good, caused by the high percentage of patients diagnosed at an early stage. Unfortunately there is only a slight improvement in prognosis over time.

Miriam Rottmann: phone 089 - 4400-74483   fax 089 - 4400-77491   mail: rottmann@ibe.med.uni-muenchen.de