

# Outcomes after Chemotherapy Followed by Radiation for Stage IIB Hodgkin Lymphoma with Bulky Disease

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## Purpose

• Treatment for stage II bulky Hodgkin lymphoma with B symptoms is controversial, with patients treated using either early-stage or advanced disease treatment paradigms, varying greatly by institution.

• We evaluated patients with stage IIB bulky disease at our institution treated primarily with combined-modality therapy by describing their long-term outcomes.

## Methods

• We retrospectively reviewed our large institutional database of Hodgkin lymphoma patients treated between 1971—2012 at M.D. Anderson Cancer Center.

• Inclusion criteria consisted of stage II HL patients with B symptoms and bulky disease.

• For temporal trends analyses, two eras were compared, with patients diagnosed before and during 1995 versus after 1995. This cut-point was based on the historical shift in treatment at our institution.

• We also identified a comparison group of 126 consecutive patients with advanced stage HL (stage III/IV) treated in a similar era.

• For comparison analyses, all patients (stages IIB through IV) must have been diagnosed before 2010 to ensure at least a minimum of 5 years of follow-up.

## Results

**Table 1: Characteristics of the Entire Cohort**

Characteristics	No. or Value of Patients
Median follow-up, yrs (range)	6.8 (0.6–38.8)
Median age, years (range)	27 (11–67)
≤40	119 (79.9)
>40	30 (20.1)
<b>Gender</b>	
Female	70 (47.0)
Male	79 (53.0)
<b>Year of diagnosis</b>	
≤1995	78 (52.4)
>1995	71 (47.7)
<b>Chemotherapy</b>	
No chemo	25 (17.0)
ABVD	72 (49.0)
MOPP	29 (19.7)
Other	21 (14.3)
Unknown	2 (1.3)
<b>Radiation</b>	
No	11 (7.4)
Yes	138 (92.6)
<b>Radiation dose (Gy)</b>	
<30.1	11 (7.4)
≥30.1	121 (81.2)
Unknown	6 (4.0)

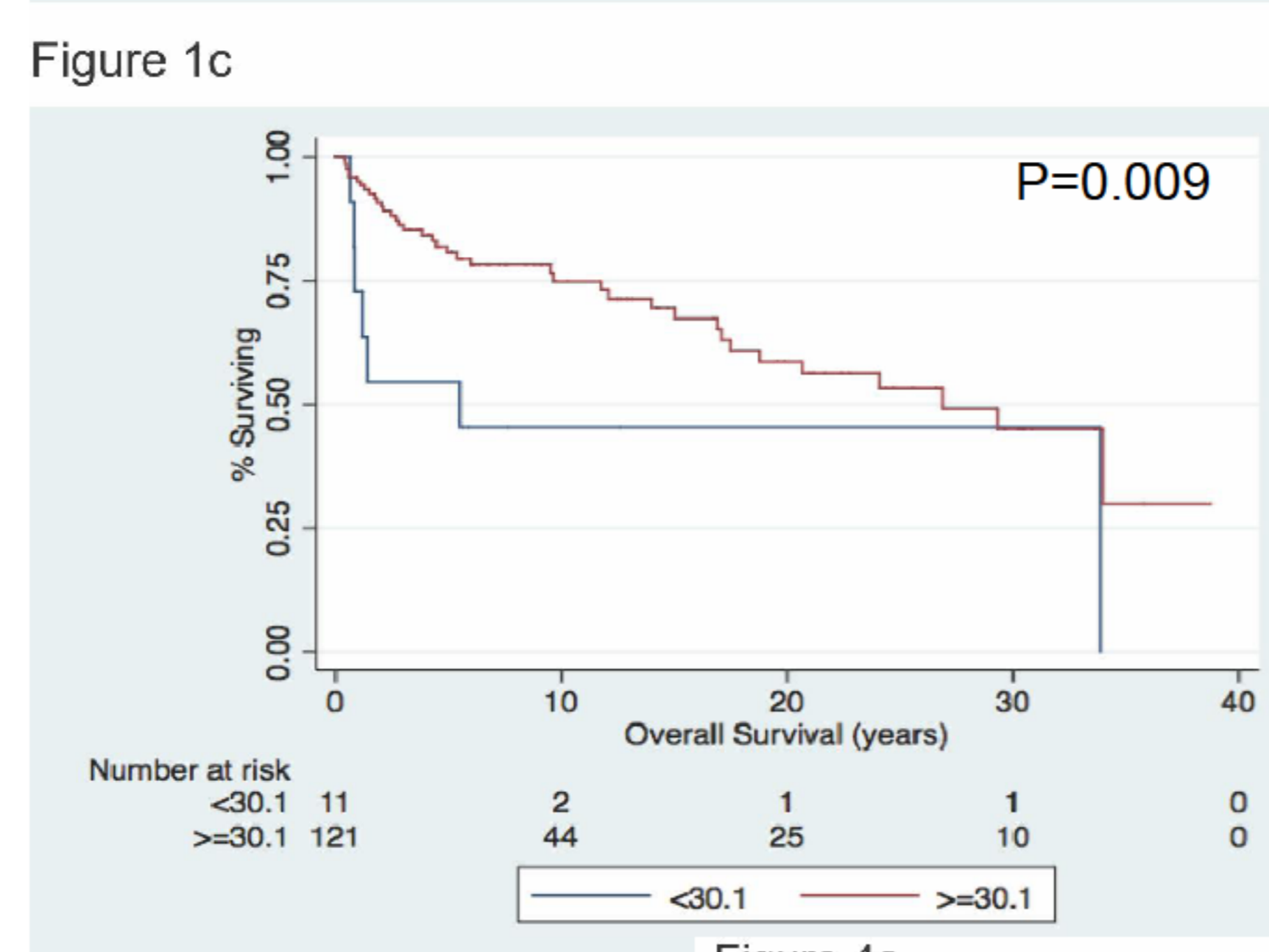
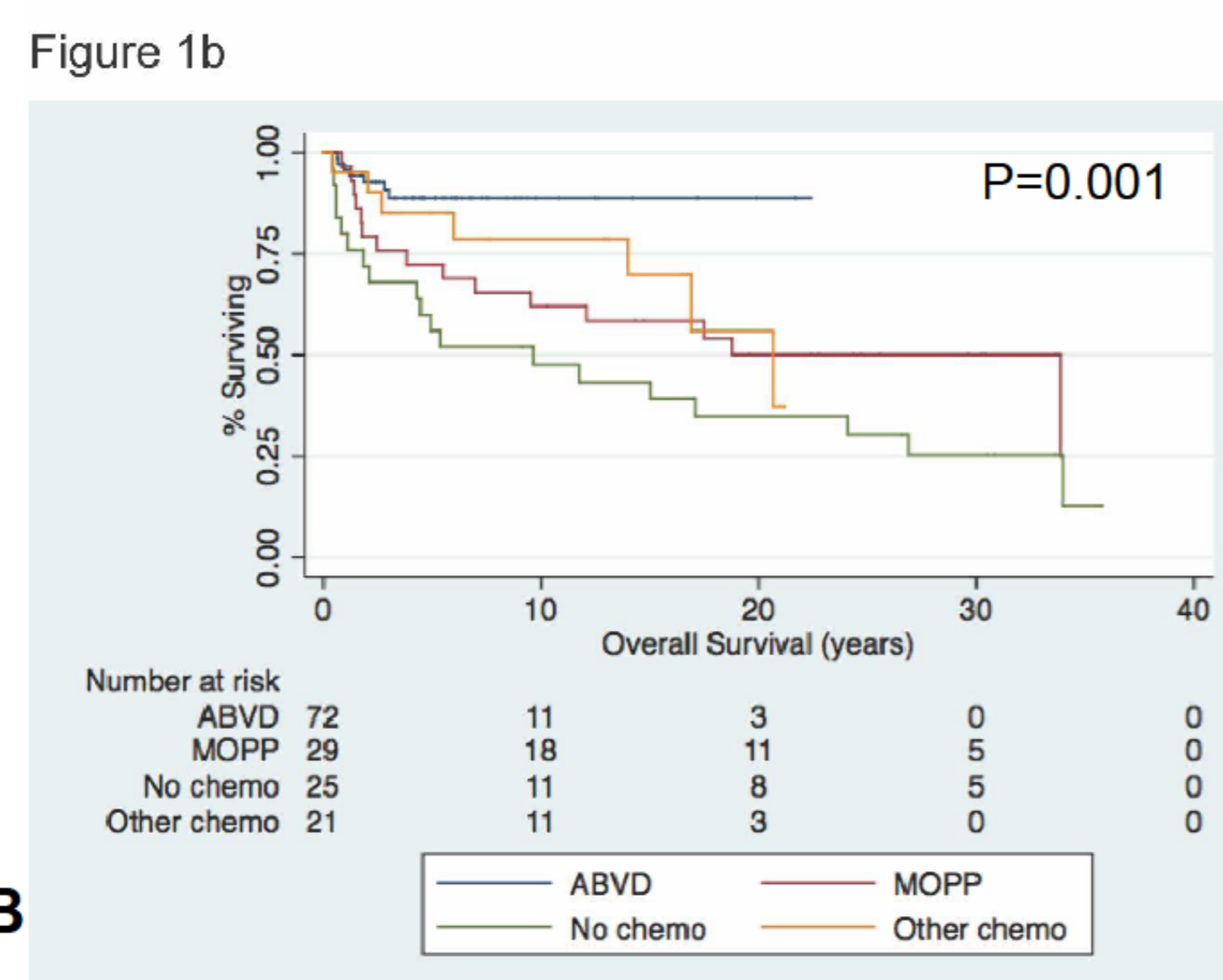
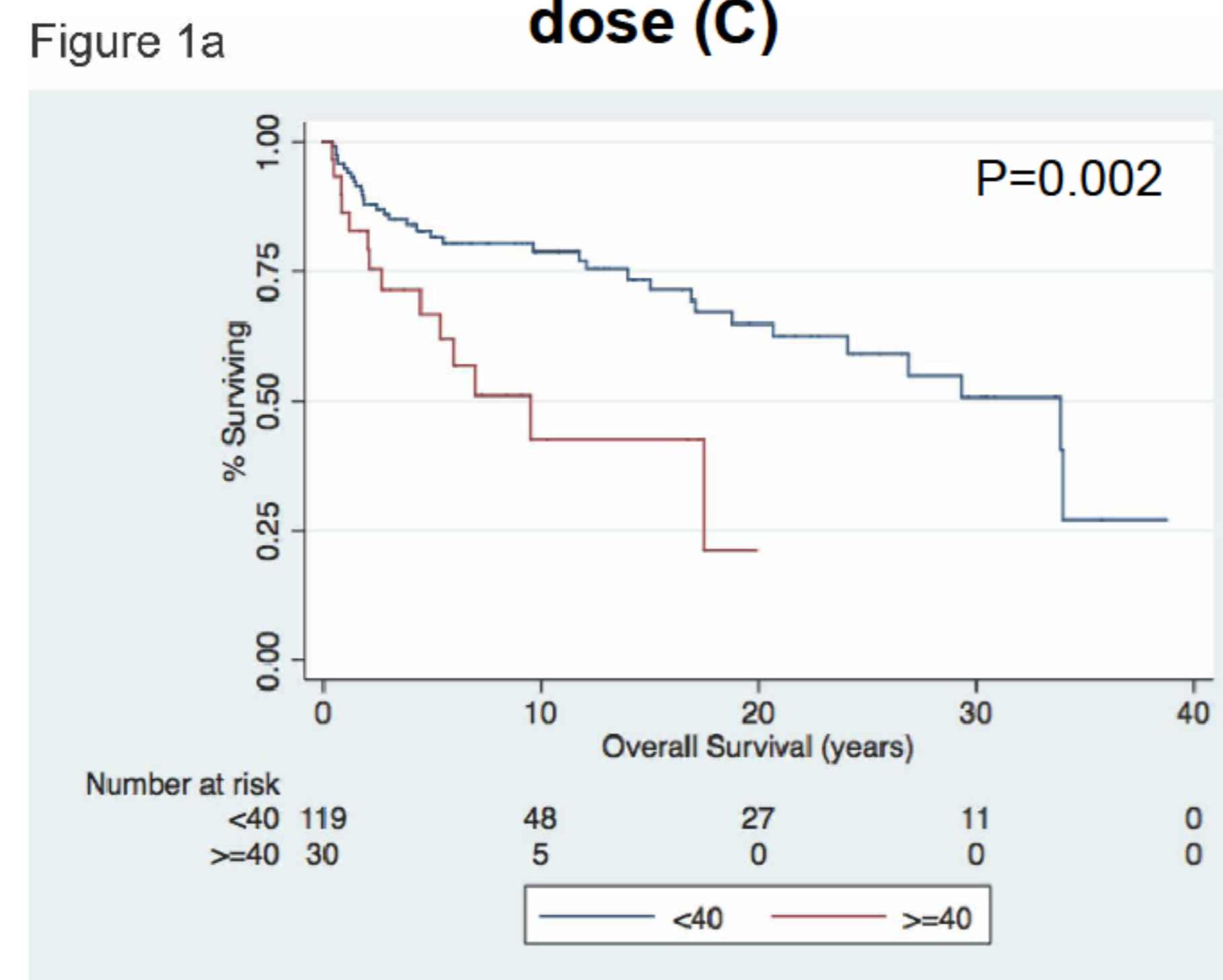
**Table 2: Treatment stratification of IIB bulky patents by era (n=149)**

Characteristics	≤1995 (n=78)	>1995 (n=71)
<b>Chemotherapy</b>		
No chemo	25 (32.1)	0 (0)
ABVD	10 (12.8)	62 (87.3)
MOPP	27 (34.6)	2 (2.8)
Other	14 (18.0)	7 (9.9)
Unknown	2 (2.6)	0 (0)
<b>Radiation</b>		
No RT	2 (2.6)	9 (12.7)
RT only	25 (32.1)	0 (0)
RT and chemo	51 (65.4)	62 (87.3)

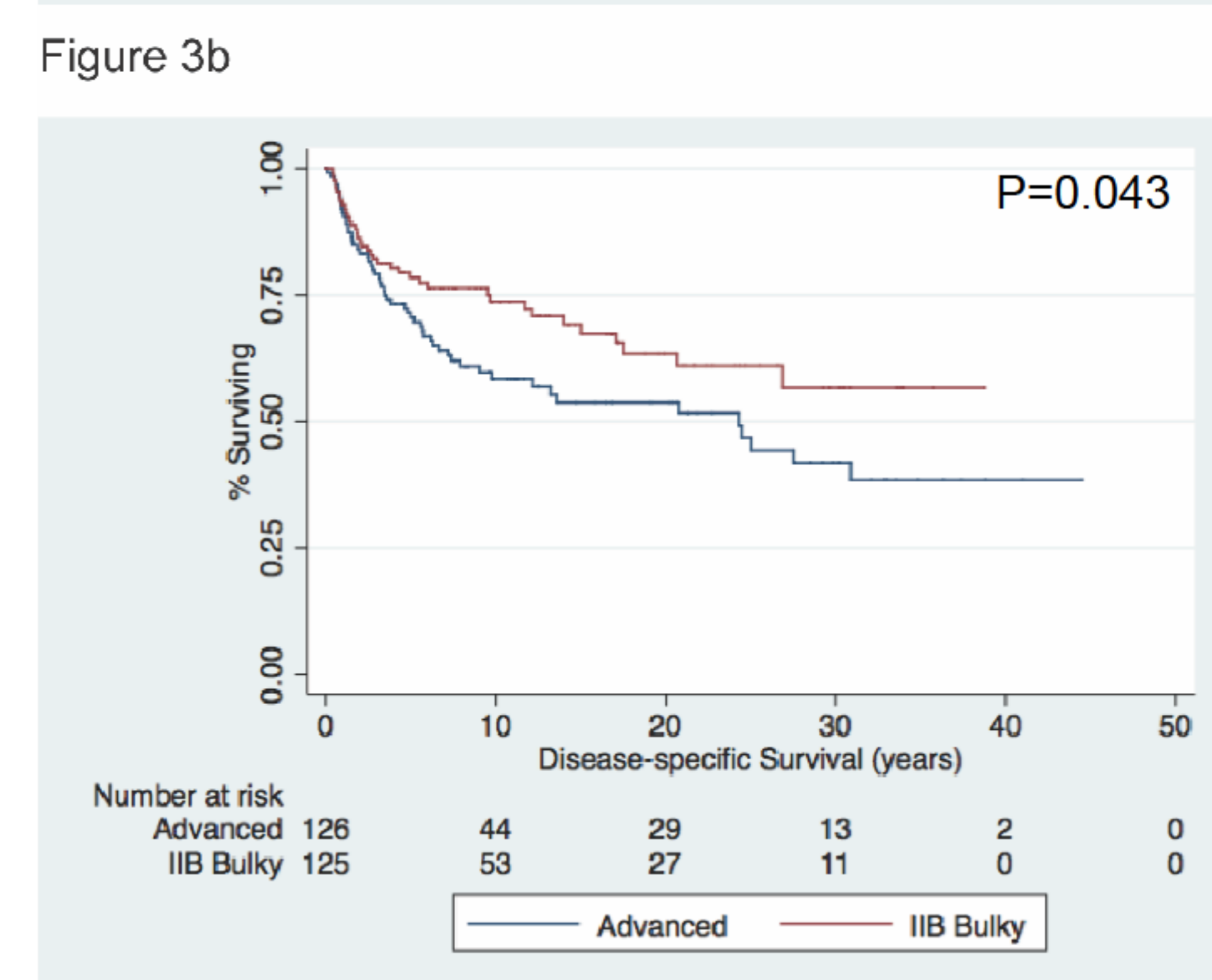
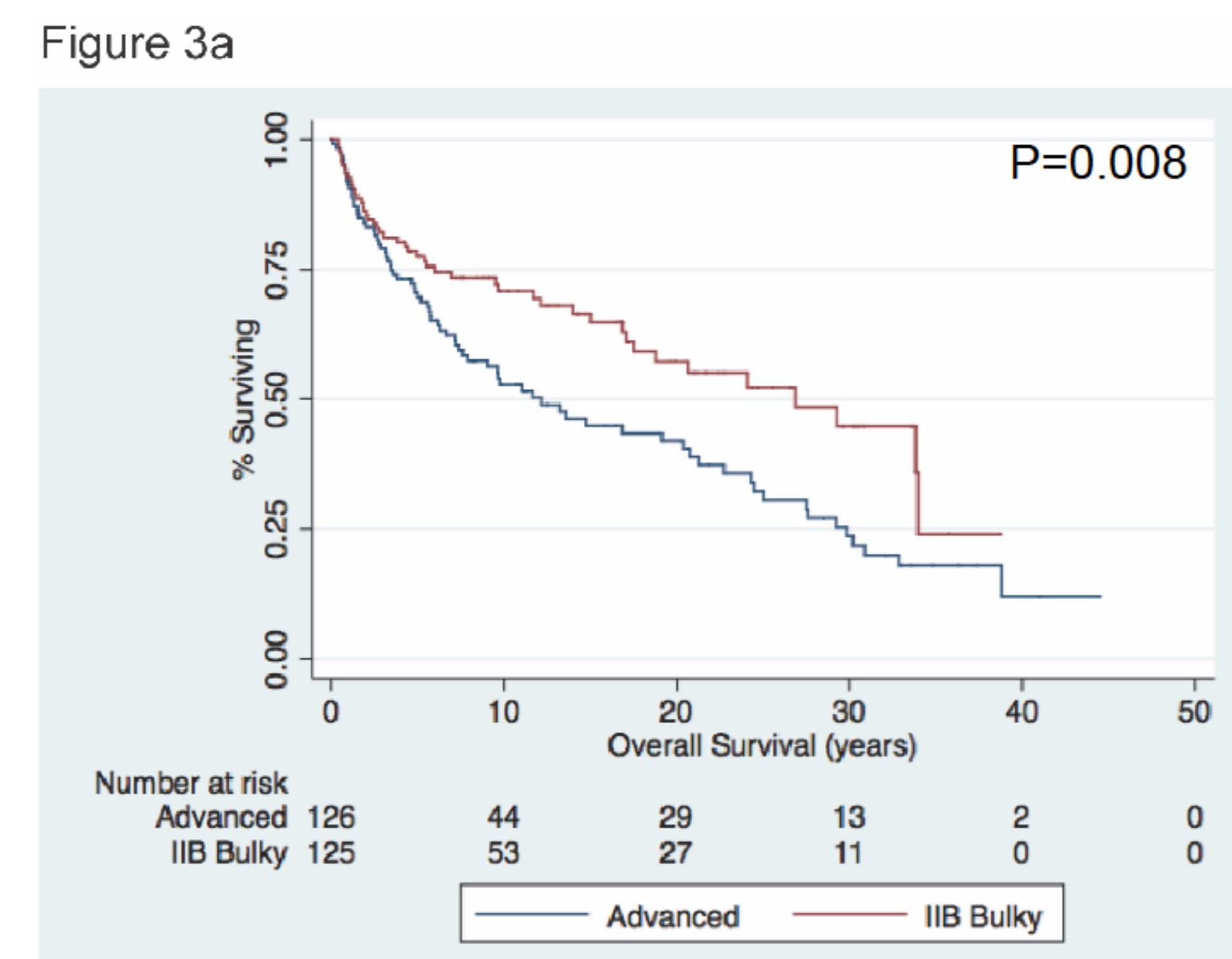
**Figure 2: Cox regression analyses for covariates of interest with respect to overall survival in stage IIB Bulky patients (n=149)**

Covariate	Univariate Analysis			Multivariate Analysis		
	HR	95% CI	p value	HR	95% CI	p value
Male (vs. female)	1.36	0.77–2.46	0.3			
Diagnosis >1995 (vs <1995)	0.34	0.13–0.73	<b>0.005</b>			
Relapse (vs. no relapse)	6.74	2.86–16.99	<b>&lt;0.0001</b>			
Age <40 (vs. ≥40)	0.38	0.20–0.74	<b>0.006</b>	0.31	0.16–0.63	<b>0.002</b>
ABVD (vs. any MOPP)	0.31	0.12–0.77	<b>0.01</b>	0.35	0.13–0.86	<b>0.021</b>
ABVD (vs. RT alone)	0.19	0.07–0.45	<b>0.0001</b>	0.15	0.06–0.36	<b>&lt;0.0001</b>
Radiation dose ≥30.1 Gy (vs. <30.1 Gy)	0.35	0.17–0.87	<b>0.026</b>	0.26	0.11–0.67	<b>0.007</b>

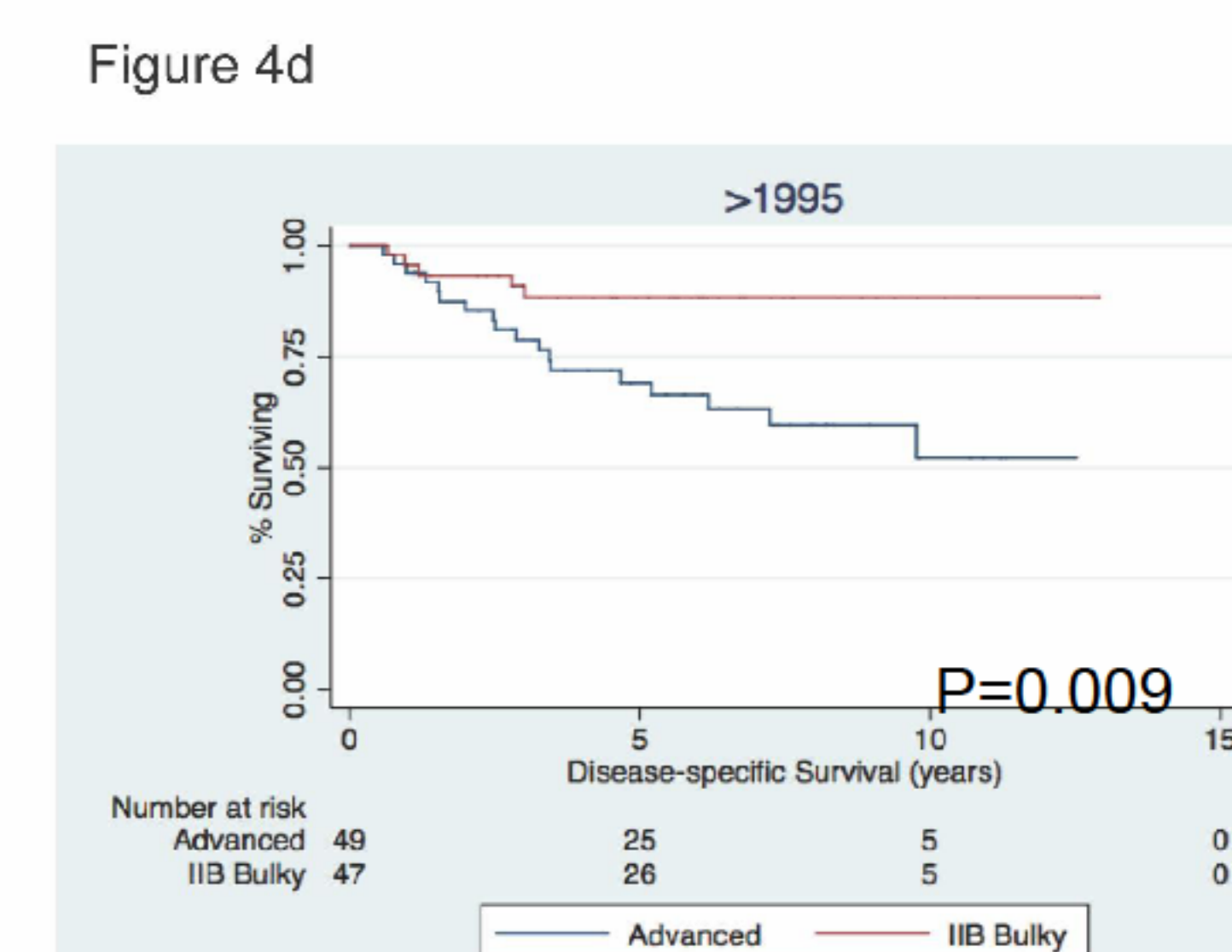
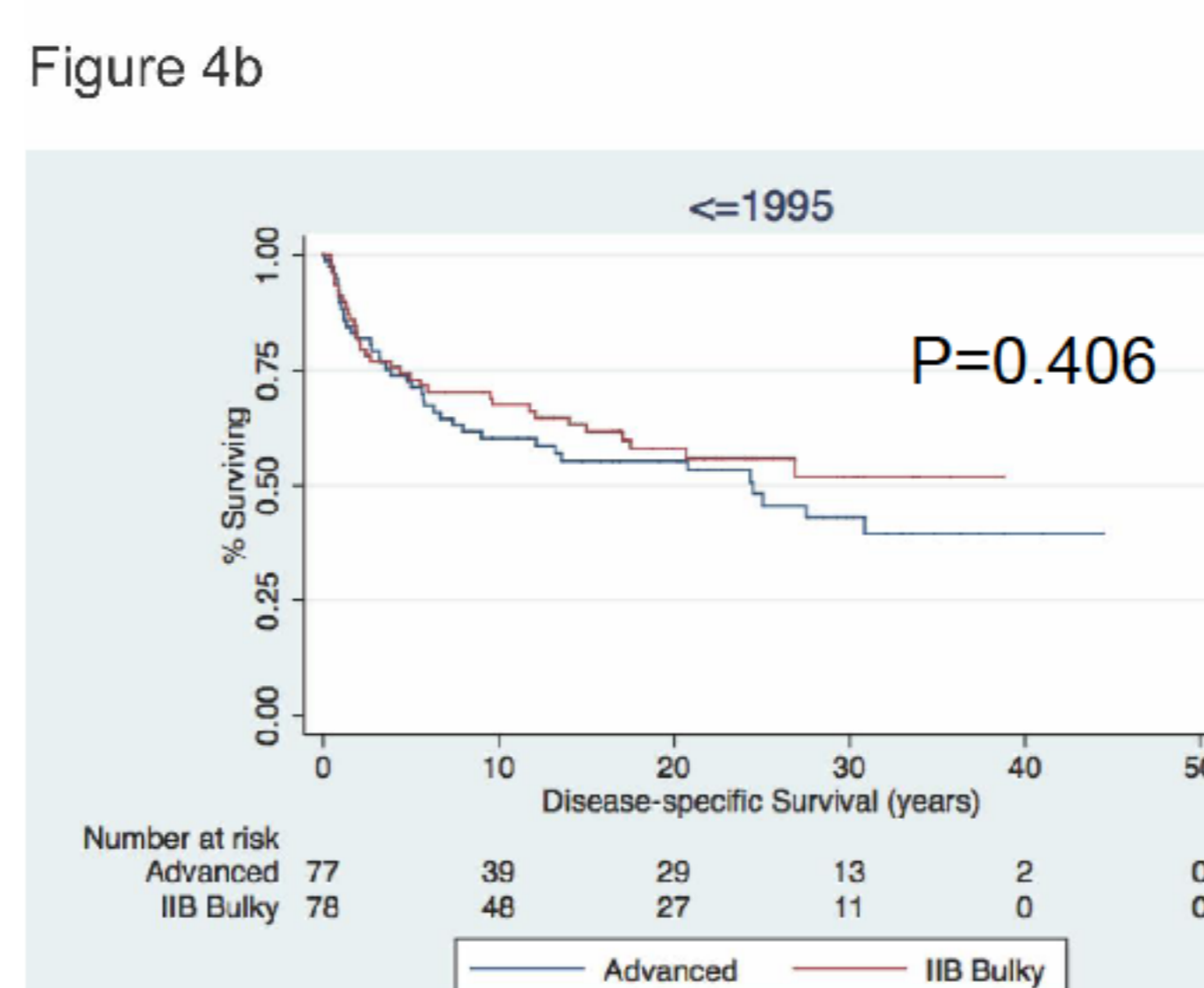
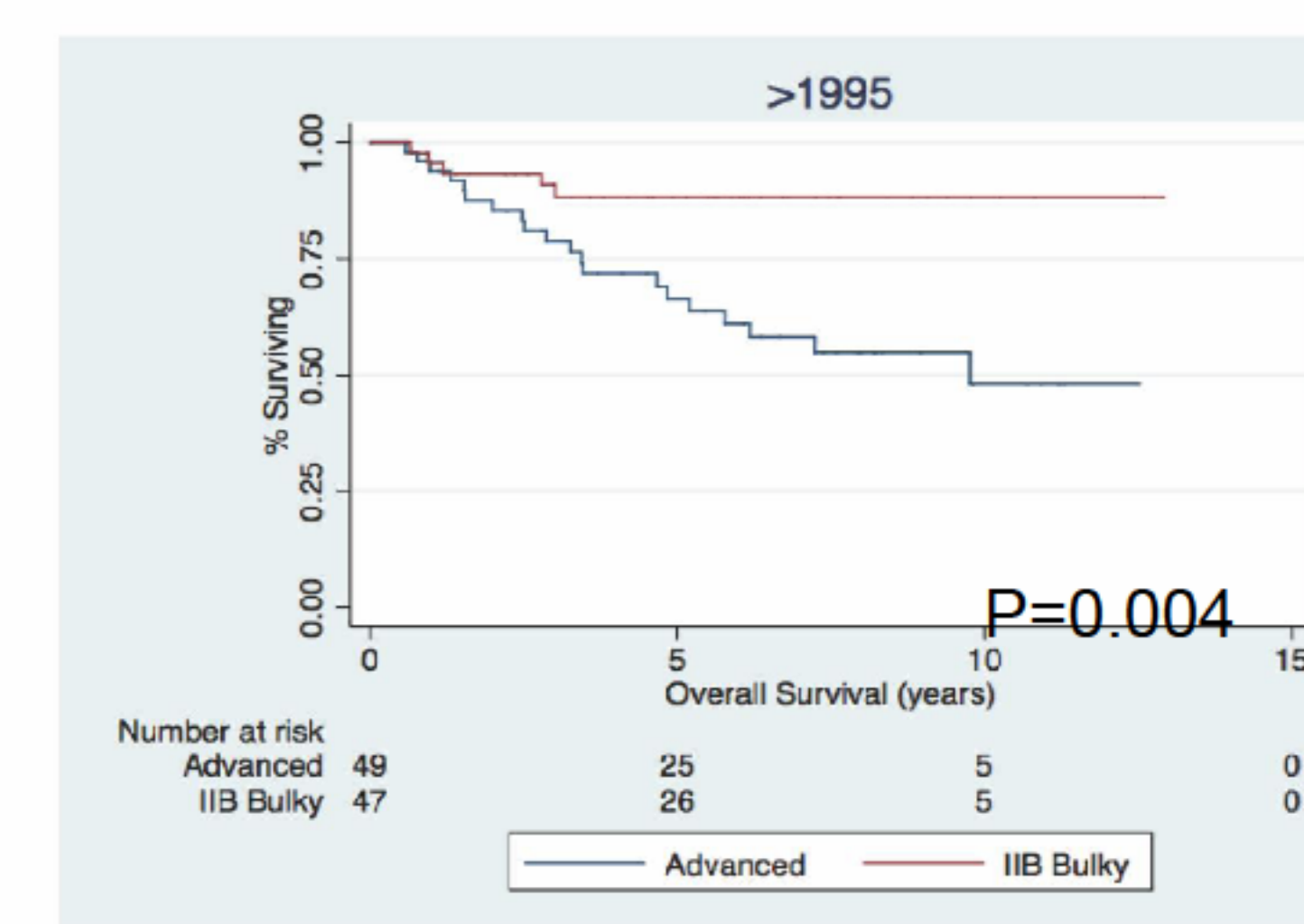
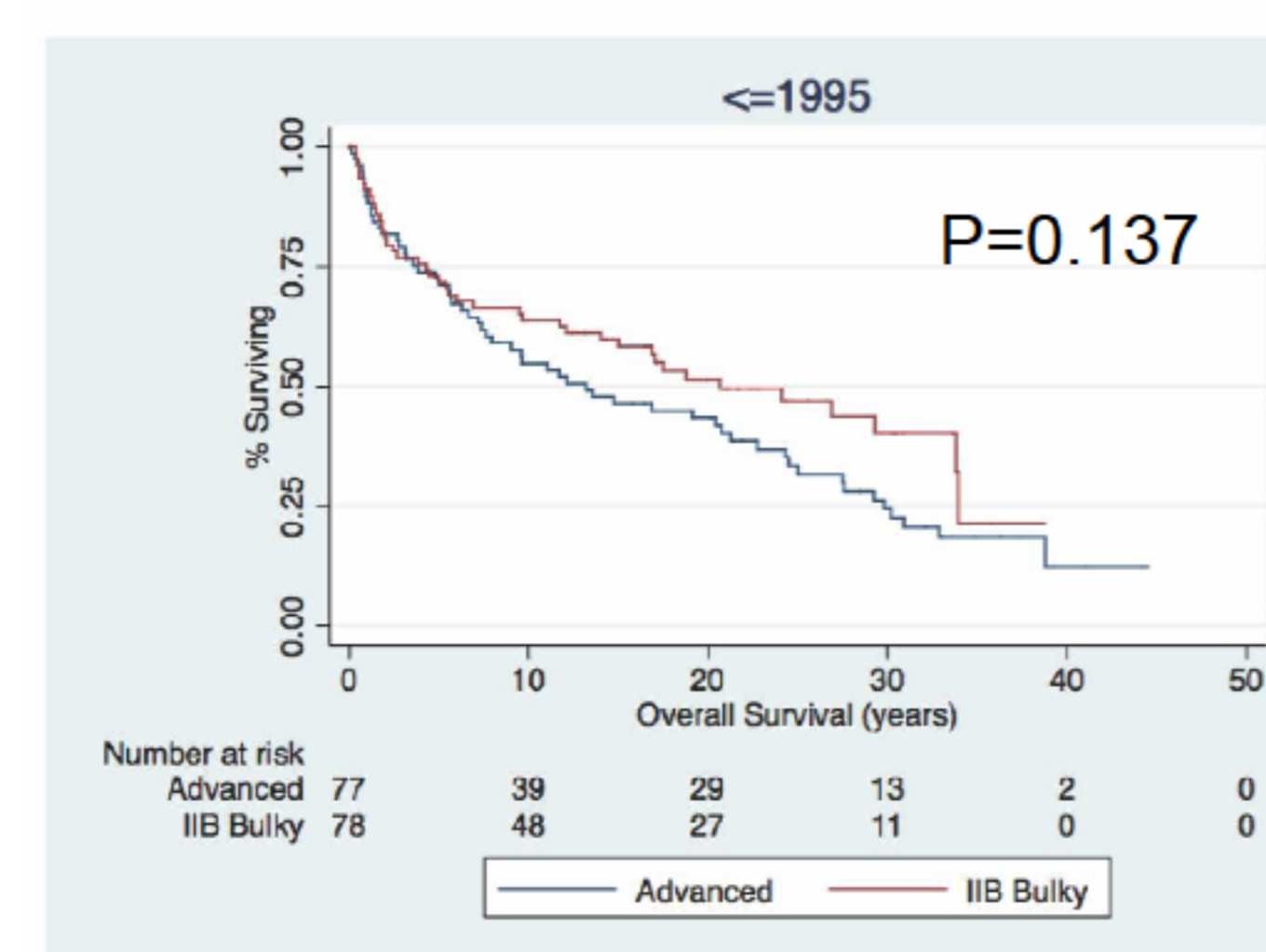
**Figure 1: Overall survival (OS) for patients with stage IIB bulky disease stratified according to age (A), chemo (B), and RT dose (C)**



**Figure 3: OS (A) and Disease-specific survival (DSS) (B) according to disease stage**



**Figure 4: A, OS according to disease stage up to 1995. B, DSS according to disease stage up to 1995. C, OS according to disease stage after 1995. D, DSS according to disease stage after 1995.**



## Conclusions

- ✓ There is controversy whether to categorize and treat stage IIB bulky Hodgkin lymphoma as early-unfavorable disease as per national guidelines or as advanced-stage disease as per the GHSG trials.
- ✓ This report reviews our institutional experience with stage IIB bulky Hodgkin lymphoma and shows overall excellent outcomes with combined-modality therapy.
- ✓ Outcomes were superior to advanced-stage patients treated during a similar era, and outcomes have improved with the adoption of less toxic chemotherapy and smaller radiation fields.
- ✓ Future studies should evaluate whether further de-escalation of chemotherapy and radiation dose can be achieved without compromising disease control in this population.