



P2.055: A UK Multi-Centre Stage-Specific Analysis of Outcomes After Curative-Intent Surgery for Non-Small Cell Lung Cancer

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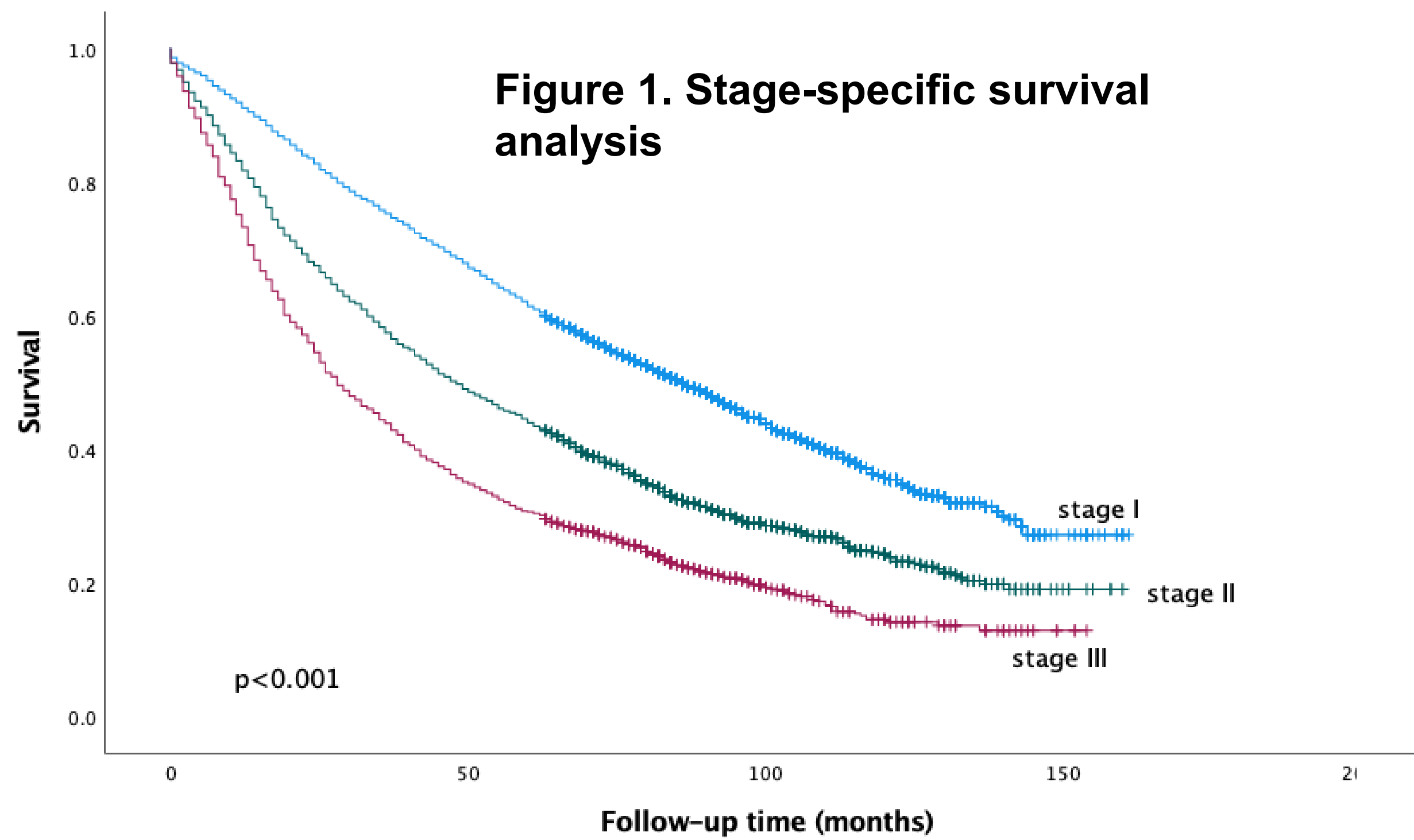
INTRODUCTION

- Lung cancer remains the leading cause of cancer-related mortality worldwide
- Accurate staging is central to treatment selection and prognosis
- However, the TNM staging system is largely derived from international datasets with limited UK representation, creating uncertainty regarding its applicability to UK surgical populations
- This study aimed to evaluate stage-specific perioperative outcomes and long-term survival following curative-intent surgery for NSCLC in a large contemporary UK multicentre cohort

METHODS

- Retrospective multi-centre observational study
- All patients who underwent curative-intent lung resection for stage I–IIIB NSCLC
- 2012–2018
- Four tertiary cardiothoracic centres in the Midlands and Northwest of England.
- Patients with stage IIIC or IV disease were excluded
- All NSCLC diagnoses were confirmed by post-operative pathological analysis
- Staging as per TNM8
- All forms of lung resection were included, including pneumonectomy, complex and non-complex lobectomy, segmentectomy and non-anatomical wedge resection
- Primary outcomes were 90-day, 1-year and 5-year mortality and overall survival
- PLOS was a secondary outcome
- Overall survival was calculated from the date of surgery to death
- Kaplan–Meier analysis and log-rank testing were used to compare survival between groups
- Multivariable time-to-event analyses were used to assess differences in outcomes between early (2012–2015) and late (2016–2018) study periods, adjusting for operative risk using the RESECT-90 score

RESULTS



Patients with **stage I NSCLC experienced the best long-term survival**, followed by stage II and stage III disease. Median overall survival decreased progressively with advancing stage, from **86 months in stage I** to **48 months in stage II** and **28 months in stage III**. Survival differences between all stages were highly significant (**all p values <0.001**), confirming pathological stage as a strong predictor of long-term outcomes following curative-intent surgical resection.

VARIABLE	STAGE I (N=3593)	STAGE II (N=1937)	STAGE III (N=1063)	P VALUE
90-day mortality	2.6% (n=94)	4.6% (n=90)	6.4% (n=68)	<0.001
1-year mortality	7.9% (n=283)	15.9% (n=308)	24.8% (n=264)	<0.001
5-year mortality	37.4% (n=1343)	53.7% (n=1040)	69.2% (n=736)	<0.001

Table 1: Stage specific outcomes

Stage I Disease (n=3,593)

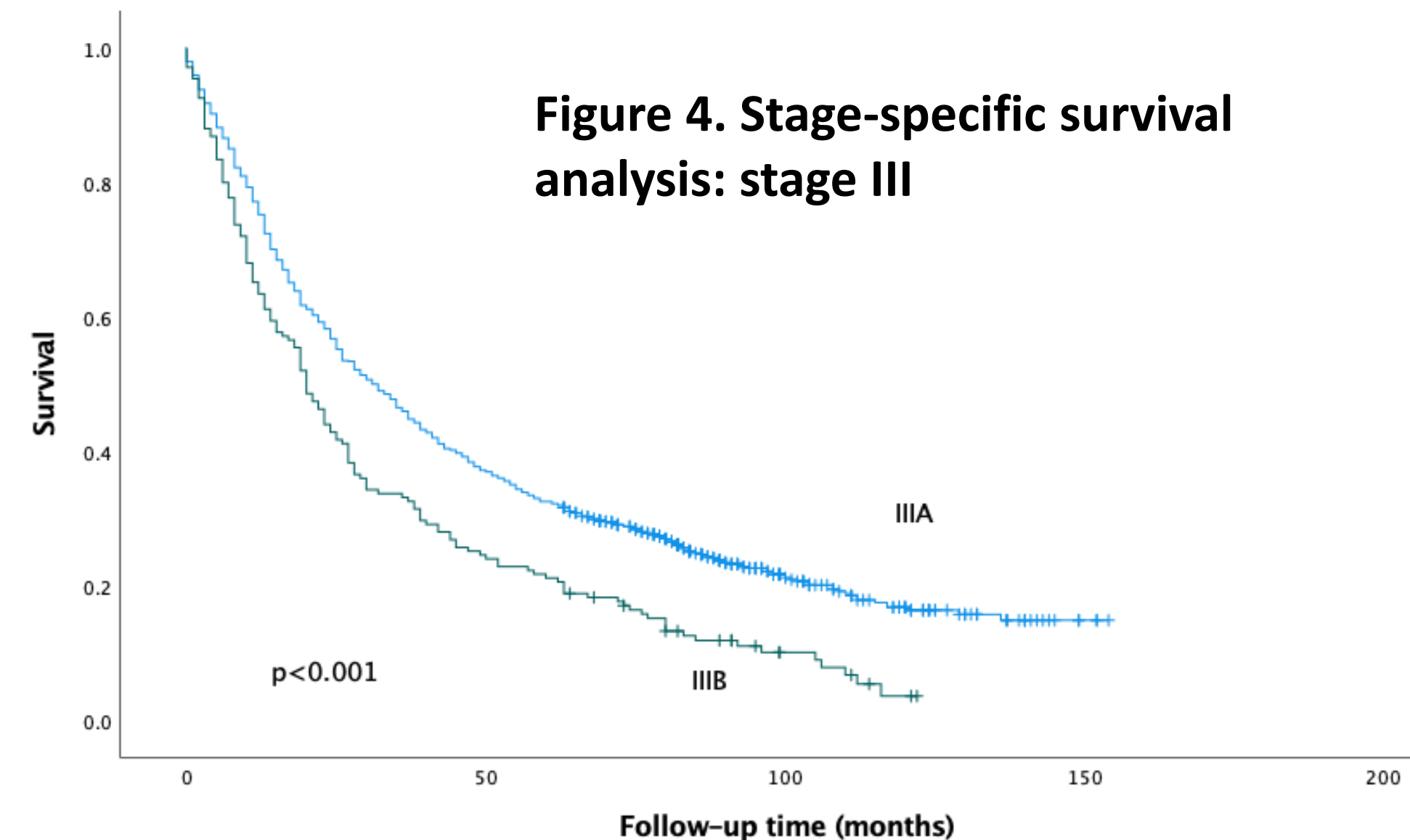
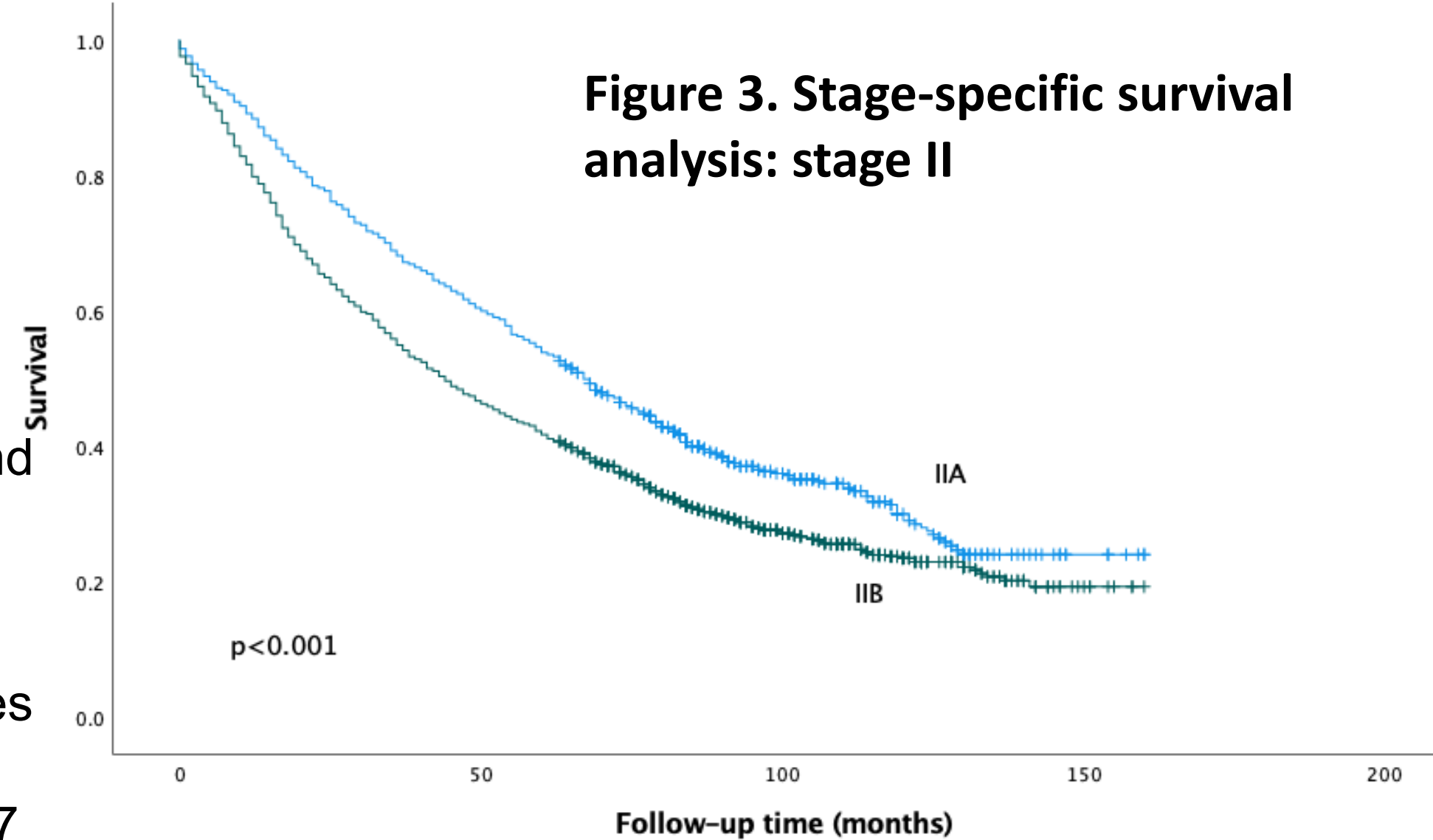
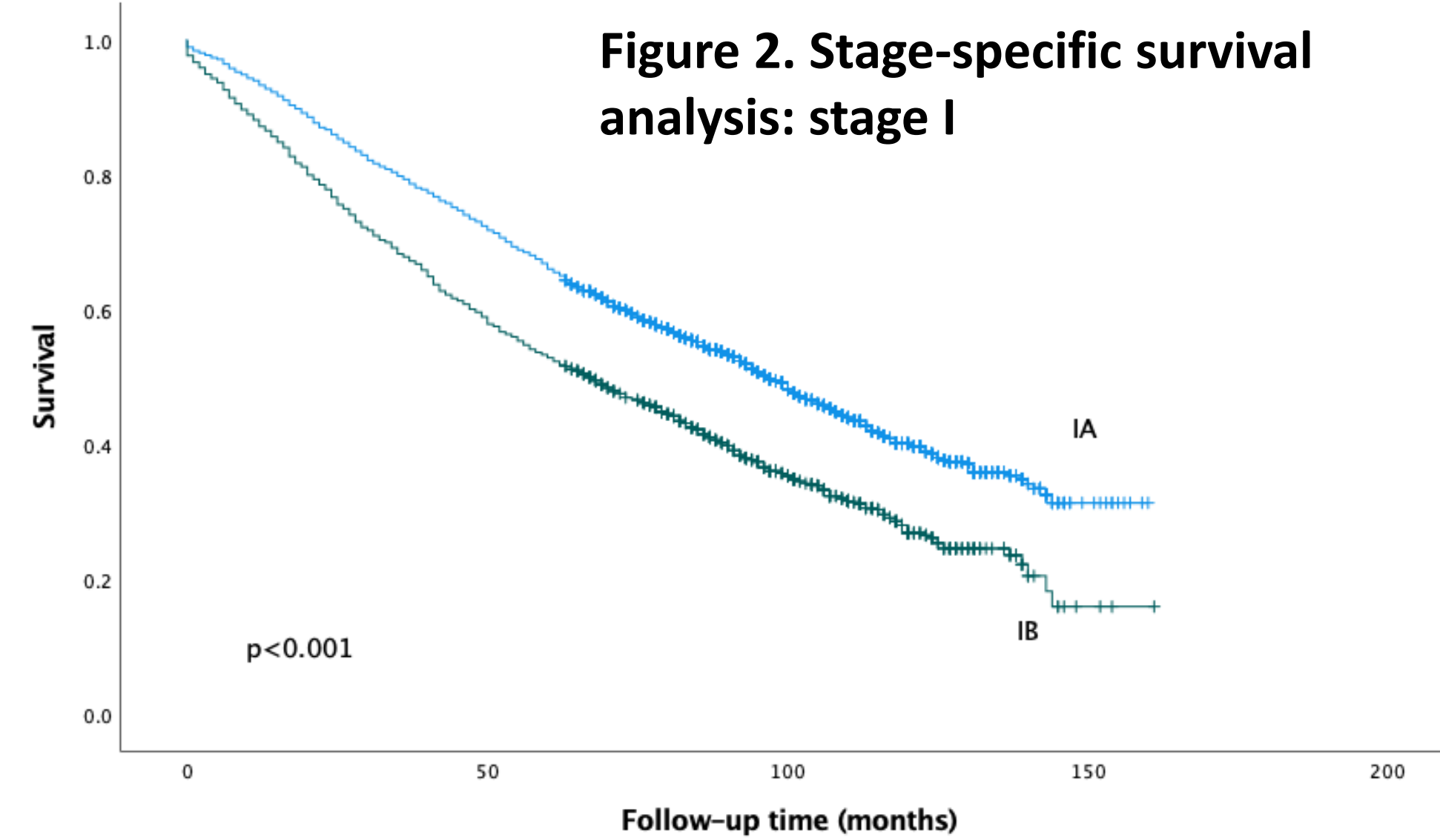
Stage I patients had the lowest operative risk (mean RESECT-90 2.8%) and the best outcomes, with 90-day, 1-year, and 5-year mortality rates of 2.6%, 7.9%, and 37.4%, respectively.

Stage II Disease (n=1,937)

Stage II disease was associated with intermediate outcomes. Mortality rates were 4.6% at 90 days, 15.9% at 1 year, and 53.7% at 5 years. Stage IIA patients experienced superior survival compared with stage IIB patients (67 vs 44 months; $p<0.001$), although 90-day mortality was similar between groups.

Stage III Disease (n=1,063)

Stage III patients had the highest operative risk (mean RESECT-90 4.1%). Mortality increased to 6.4% at 90 days, 24.8% at 1 year, and 69.2% at 5 years. Median overall survival was 28 months. Stage IIIA demonstrated significantly better survival than stage IIIB (31 vs 20 months; $p<0.001$)



DISCUSSION AND CONCLUSION

In this large contemporary UK multicentre cohort, pathological stage was a strong predictor of both short-term post-operative mortality and long-term survival following curative-intent NSCLC resection. Increasing stage was associated with progressively worse outcomes, **supporting the continued prognostic value of TNM staging in surgical patients**.

Outcomes improved over time despite an older surgical population, reflecting **advances in patient selection, peri-operative care and surgical practice**.

These findings provide contemporary UK benchmark data for outcome reporting, patient counselling and treatment planning.

Future Direction for Research

Future research should focus on combining stage with biological and patient-specific factors to improve personalised treatment selection and prognostication.

Acknowledgements:

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Primary Researcher Marcus Taylor, under the supervision of Professor Mohamad N Bittar

Full list of references available:



Artificial Intelligence (AI) Use Disclaimer

In accordance with the standards and guidance set forth by the Accreditation Council for Continuing Medical Education (ACCME), no Artificial intelligence (AI) was used in the development and execution of this study, and no AI has been used in the creation or development of this academic poster.