

# Tumour size and Fuhrman grade further enhance the prognostic impact of perinephric fat invasion and renal vein extension in T3a staging of renal cell carcinoma (RCC)

## Introduction

- Controversy exists in the staging of perinephric fat invasion alone, regardless of tumour size and Fuhrman grade, as T3a in the 2010 TNM staging for RCC
- Our uro-oncology data showed overlap in disease-free survival for T2 and T3 (Figure 1), Could this be due to an over-staging of perinephric fat invasion as pT3a, thus downstaging the prognostic value of T3 as a whole
- The objective of this study is to evaluate the prognostic value of perinephric fat invasion according to the AJCC 2010 TMN classification

## Materials and Methods

- 143 consecutive radical nephrectomy cases with pT3a RCC were retrospectively analysed
- Perinephric fat alone n=101; renal vein invasion alone n=42 Median follow-up 47.5 months
- Kaplan-Meier survival analysis was used to plot disease-free survival curves
- Overall comparisons by log rank (Mantel-Cox) analysis

## Results

**Perinephric fat invasion staged as pT3a has better prognosis compared to renal vein invasion and comparable to pT2**

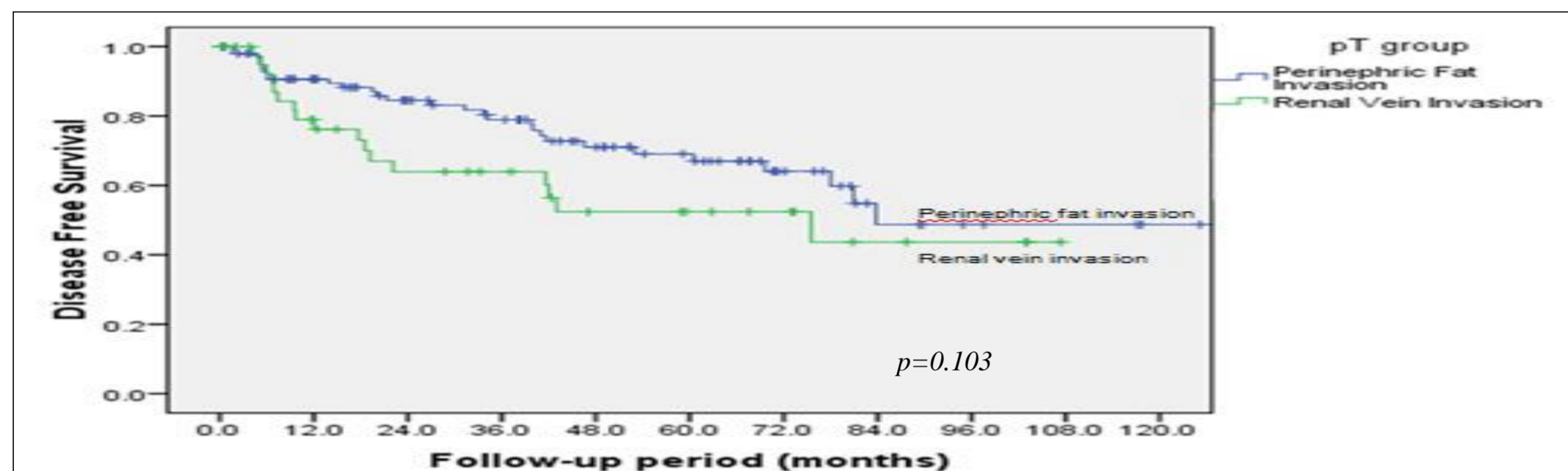


Fig.2 Disease-free survival of pT3a (perinephric fat invasion) vs. pT3a (renal vein involvement)

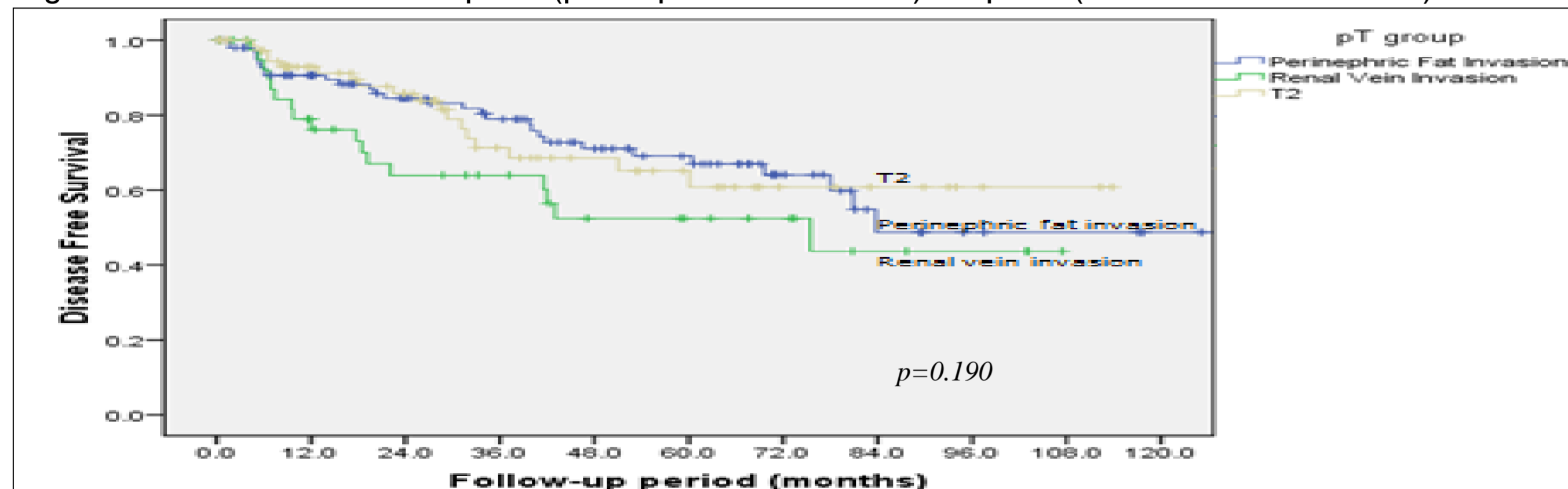


Fig.3 Disease-free survival of pT3a (perinephric fat invasion and renal vein involvement) vs. pT2 group

**In tumour of less than 7cm with perinephric fat invasion, increase in tumour size leads to poorer prognosis**

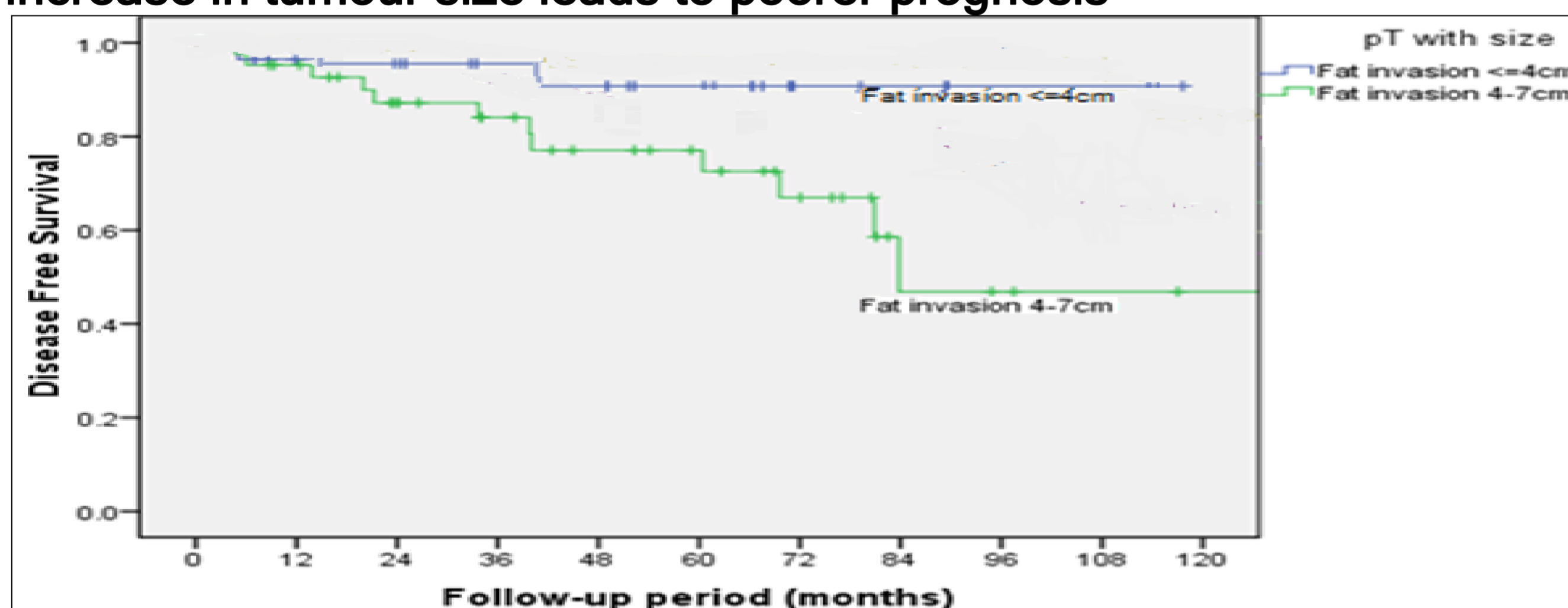


Fig.5 Disease-free survival of RCC with perinephric fat invasion (pT3a) in tumour of <4cm vs 4-7cm.

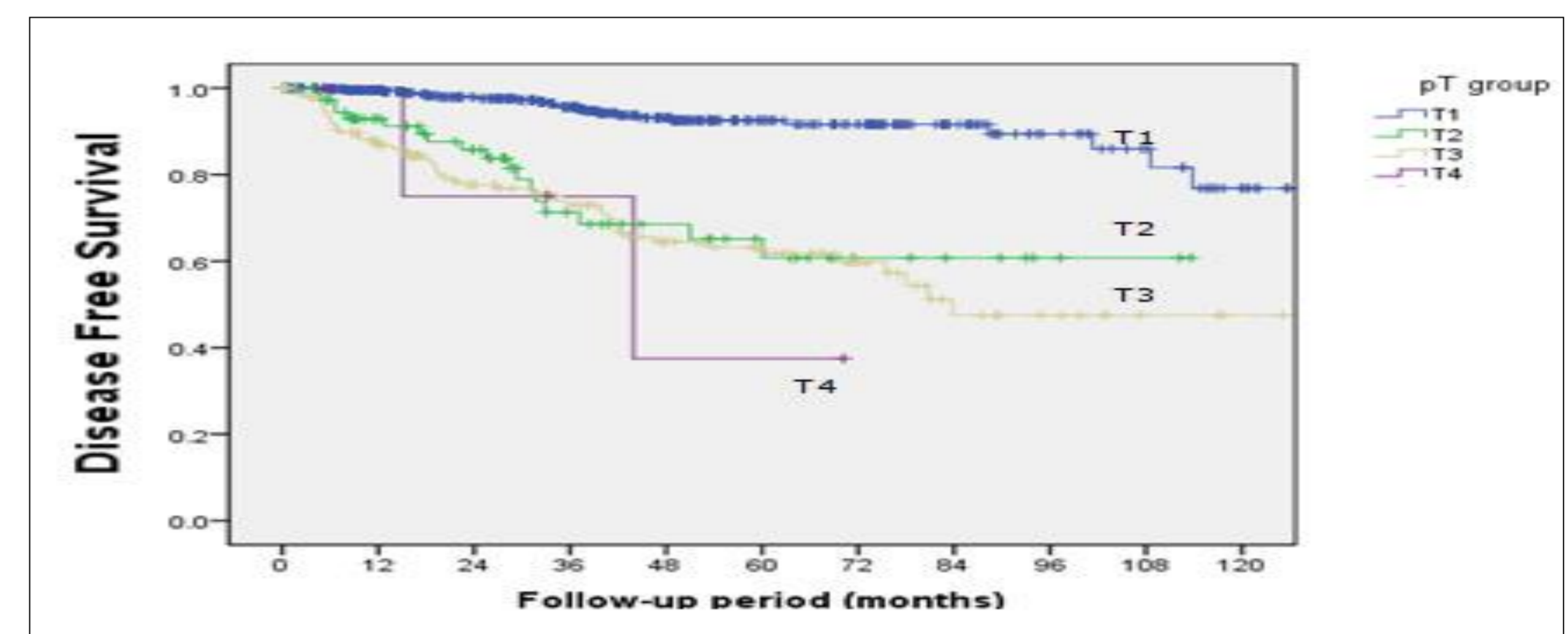


Fig1. Disease-free survival of patients who underwent radical nephrectomy in Singapore General Hospital from 2002 to 2012 according to 2010 AJCC staging system

**Fuhrman grading further enhances the prognostic value of pT3a perinephric fat invasion subgroup**

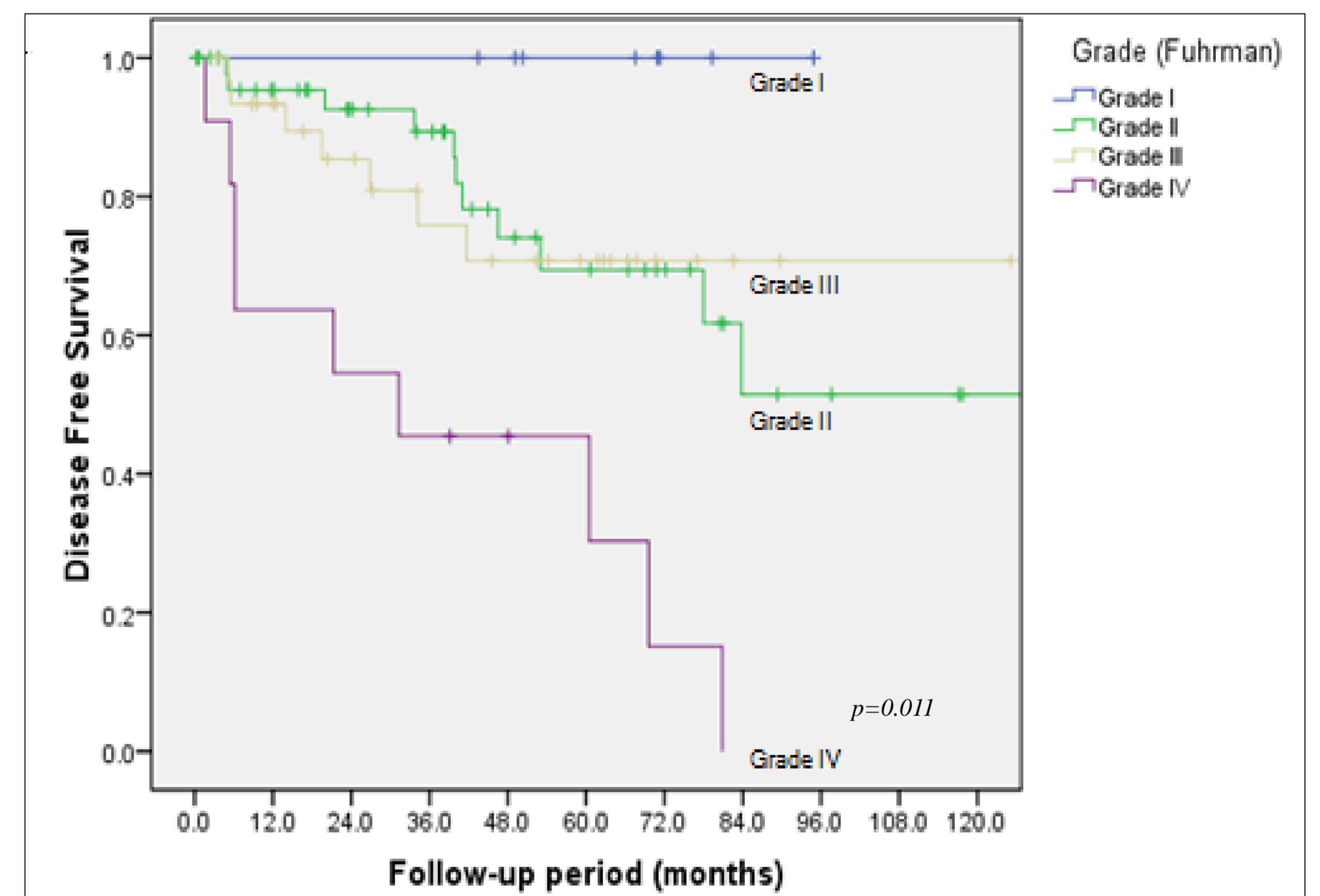


Fig. 4 Stratification of patients with pT3a perinephric fat invasion according to Fuhrman grade

**In tumour above 7cm, the presence of perinephric fat invasion signifies worse prognosis**

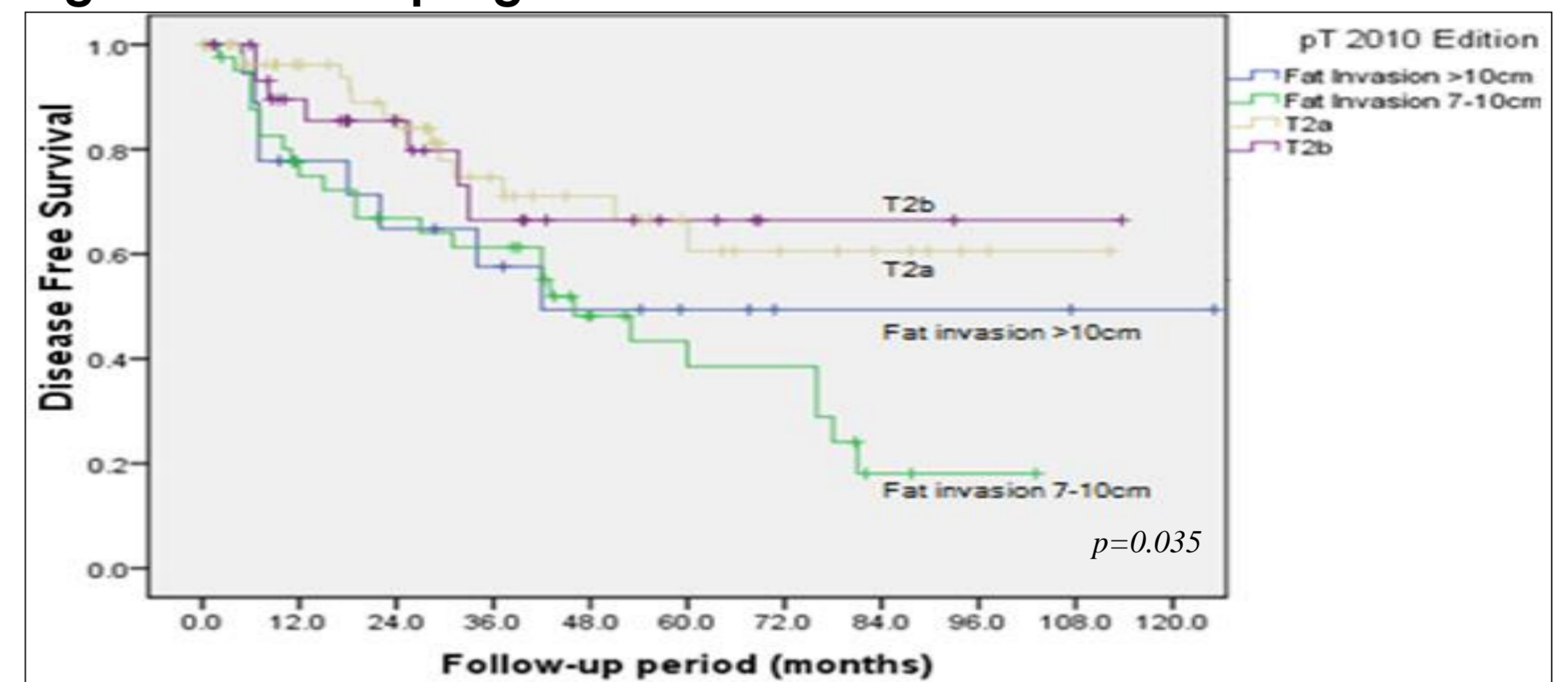


Fig.6 Disease-free survival of RCC of > 7cm with perinephric fat invasion vs. those without perinephric fat invasion

## Conclusion

- Within pT3a subcategory, perinephric fat invasion seems to have better prognosis in terms of disease-free survival compared to renal vein invasion
- Fuhrman grade further enhances prognostic value of perinephric fat invasion

- In RCC of < 7cm, tumour size is an important adjunct to the prognostic value of perinephric fat invasion
- In RCC of > 7cm, the presence of perinephric fat invasion confers poorer prognosis