

## Introduction

Glioblastoma is the most frequent malignant primary brain tumor and is still associated with a poor prognosis despite extensive research. Glioblastoma is notorious by its phenotypic diversity and infiltrative behaviour.

Cadherins are critical players in a variety of biological mechanisms including tissue morphogenesis as well as tumor invasion/metastasis.

Studies on cadherin expression in both Central Nervous System and gliomas have had heterogeneous results.

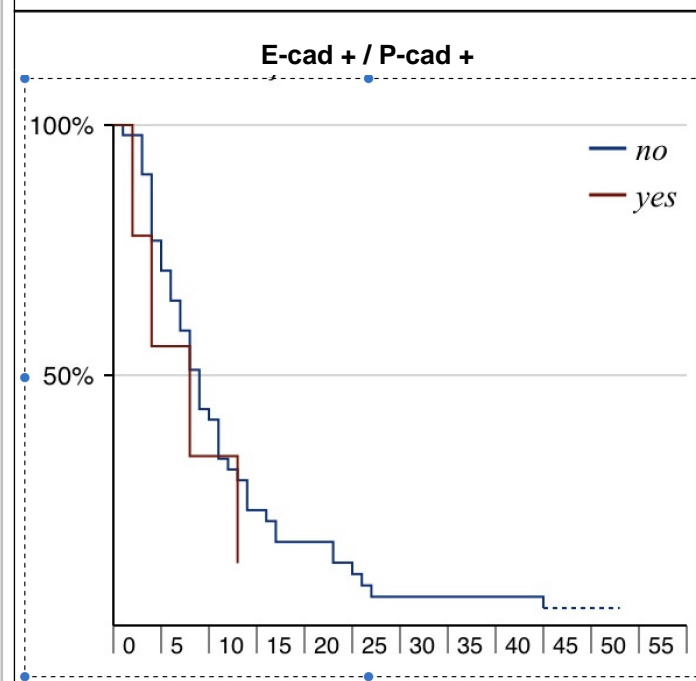
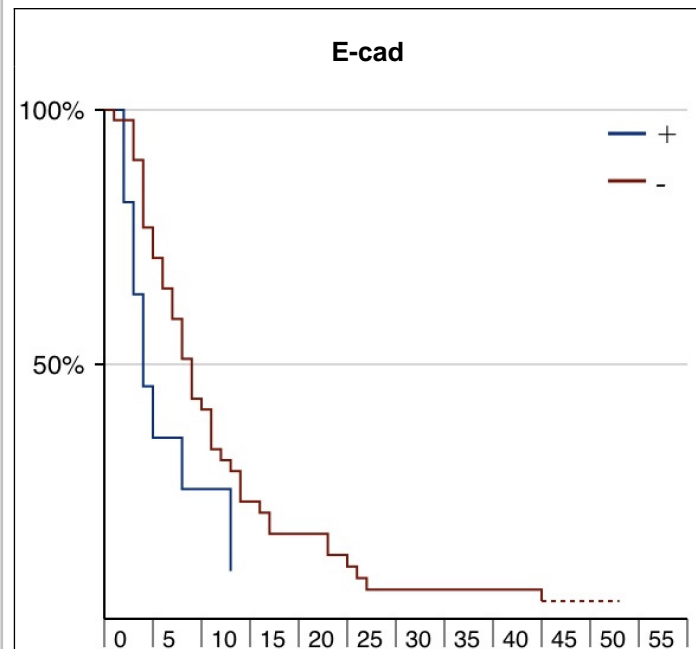
## Methods

A surgical series of 180 glioblastoma patients was reviewed regarding clinical, imaging and follow-up data.

We further evaluated expression for E-cadherin, N-cadherin and P-cadherin through immunohistochemistry, and correlated to patient prognosis, imaging and neuropathological characteristics.

## Results

The median overall survival in our series was 12 months. Most tumours expressed N-cadherin, while expression of both E-cadherin and P-cadherin was limited (< 20 %) and correlated to distinct neuropathological and imaging features. Moreover, using cadherin expression profiles we were able to stratify patient prognosis. Individual expression of E-cadherin correlated with a worse prognosis ( $p=0,015$ ), but strikingly tumors with co-expression Pcad+ Ecad+ predicted the poorest prognosis in our series ( $p=0.033$ ).



## Conclusions

Expression of P-cadherin and E-cadherin in glioblastoma indicate a distinct tumor subset regarding neuropathological and neuroimaging characteristics, as well as distinct prognosis.

We thus propose cadherin expression profiles as disease biomarkers for glioblastoma as they may reflect tumor biological characteristics namely its differentiation, proliferation and invasiveness.

## Learning Objectives

By the conclusion of this session, participants should be able to:

1. Describe the physiological role of cadherin in Central Nervous System and their role in tumour differentiation, proliferation and invasiveness.
2. Identify a subset of glioblastoma defined by E-cadherin positivity, with characteristic imaging and neuropathological features.
3. Discuss the potential application of Cadherin expression profiles for glioblastoma prognosis stratification.