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PROGNOSTIC IMPLICATION OF AQUAPORINS 1 EXPRESSION IN LUNG ADENOCARCINOMA

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Objectives: Aquaporins (AQPs) are a group of transmembrane water-selective channel proteins playing a major role in regulation of water permeability of plasma membranes. AQPs have been identified as pro-tumourigenic and anti-apoptotic factors promoting tumour progression, invasion and metastasis. The recent reports of AQP1 overexpression in lung adenocarcinoma (AC) strongly suggests their involvement in molecular mechanisms of lung cancer. The aim of this retrospective cohort single centre study was to evaluate the expression and the prognostic significance of AQP1 in resected ACs.

Methods: Patients submitted to pulmonary resection with systematic lymphadenectomy for AC were included. AQP1 expression was analysed in the resected specimen by immunohistochemistry considering high expression immunoreactivity score (IRS) ≥3. Clinical data, pathological TNM staging and follow-up were recorded. Multivariate Cox survival analysis and Fisher T-test were performed.

Results: Hundred and eighty-seven patients, median age 65 years, 71% male, median survival time 44 months, were submitted to lobectomies 69%, wedge resections 15%, bilobectomies 5%, anatomical segmentectomies 8% and pneumonectomies 2%. Of these 114 patients were stage I, 27 stage II and 46 stage III. AQP1 overexpression was detected in 78 AC (41%), without significant differences due to the stage of the disease, grading or gender. The AQP1 protein overexpression group showed a shorter disease free survival ($P = 0.001$), HR 4.714663 [95% CI 1.932511-11.50216], confirmed in multivariate analysis adjusted by stage, grade, sex and age ($P < 0.0001$). Statistically significant difference in overall survival was not observed.

Conclusions: Our results confirm the involvement of AQP1 in ACs. Immunohistochemistry analysis showed that AQP1 expression was irrespective of confounders and there was a significant correlation between AQP1 overexpression and worse disease free survival.

Disclosure: No significant relationships.