LOCAL ADVANCED ESOPHAGEAL CANCER: PRECISE PREDICTION OF 5-YEAR SURVIVAL AFTER COMBINED ESOPHAGOGASTRECTOMIES

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Introduction: We examined factors in terms of precise prediction of 5-year survival (SYS) of local advanced esophageal cancer (EC) patients (ECP) (T4N0-2M0) after complete (R0) combined esophagogastrectomies (E).

Methods: We analyzed data of 113 consecutive ECP (age = 55.4 ± 9.9 years; tumor size = 8.6 ± 3.2 cm) radically operated and monitored in 1975-2014 (m = 83, f = 30; Lewis = 43, Garlock = 70, combined E with resection of trachea, bronchus, lung, aorta, VCS, pericardium, liver, pancreas, diaphragm, colon, splenectomy = 113; only surgery S = 83, adjuvant chemoimmunoradiotherapy AT = 30: 5FU + thymalin/taktinin + radiotherapy 45-50Gy; T4 = 113; N0 = 29, N1 = 5, N2 = 79, M0 = 113; G1 = 29, G2 = 17, G3 = 67; squamous = 44, adenocarcinoma = 61, mix = 8. Multivariate Cox modeling, clustering, SEPATH, Monte Carlo, bootstrap and neural networks computing were used to determine any significant dependence.

Results: Overall life span (LS) was 1123.8 ± 1463.6 days and cumulative SYS reached 24.8%, 10 years – 14.5%, 20 years – 7.2%. 17 ECP lived more than 5 years without cancer. 73 ECP died because of EC. AT significantly improved SYS (38.8% vs. 22.4%) (P = 0.027). Cox modeling displayed (Chi2 = 98.1, df = 18, P = 0.000) that SYS of ECP significantly depended on: tumor growth, age, gender, blood cells, cell ratio factors (ratio between cancer cells and blood cells subpopulations), prothrombin index, residual nitrogen, hemorrhage time (P = 0.000-0.015). Neural networks, genetic algorithm selection and bootstrap simulation revealed relationships between SYS and gender (rank = 1), prothrombin index (rank = 2), glucose (3), leucocytes (4), lymphocytes (5), histology (6), tumor growth (7). Correct prediction of SYS was 100% by neural networks computing.

Conclusion: SYS of local advanced ECP after radical procedures significantly depended on: tumor characteristics, blood cell circuit, biochemical factors, hemostasis system, anthropometric data and adjuvant treatment.