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Title: Effect of statin therapy in patients with lung cancer on mortality, incidence of infections and pulmonary embolism

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Body: Background: Statins (S) have antiproliferative effects. Aim of this study was to assess whether S users with lung cancer (LC) had reduced risk of mortality, infections and pulmonary embolism. Methods: We studied the association of S use in a retrospective study in 465 pts with first diagnosis of LC. The primary variables were stage and type of LC and S use at time of LC diagnosis and thereafter. During follow-up occurrence of death, infections and pulmonary embolism were recorded. Results: 91 pts (19.6%) had S, 371 pts not. LC stages were I-IIIa 201 pts (43.2%), IIIb-IV 264 pts (56.8%). Pts with S were older (67.8 ± 7.6 vs. 64.5 ± 9.8 y., $p < 0.005$), had higher BMI, more often diabetes, myocardial infarction and chronic heart failure. Charlson comorbidity index was not different (5.2 ± 2.2 vs. 5.7 ± 2.4 , $p = 0.08$). During follow-up 43% of the pts died. In Kaplan Meier analysis stage I-IIIa pts with S had lower survival compared with pts without S (log rank test, $p < 0.0001$). However there was no significant difference in pts stage IIIb-IV. In pts < 65 y. survival was longer in pts with vs. without S (1002 (95%CI 588-3977) vs. 604 (95%CI 513-806) days, $p < 0.05$). In pts ≥ 65 y. there was no difference in survival (493 (95%CI 308-776) vs. 693 (95%CI 555-917) days, $p = \text{n.s.}$). Incidence of severe infections and pulmonary embolism were not different in pts with and without S. Conclusions: Long-term S therapy seems to reduce mortality in younger LC pts < 65 y., but not in pts ≥ 65 y. In stage I-IIIa pts S are associated with worse survival, whereas there is no difference in stage IIIb-IV pts. S do not reduce the incidence of severe infections and pulmonary embolism at follow-up.