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Title: Long-term survival is linked to serum LDH normalization in SCLC

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Body: Background: High serum LDH level is linked to many malignancies with poorer survival, but tumour LDH has not been well investigated in small cell lung cancer (SCLC). Methods: Chemotherapy was performed in 157 cases of confirmed SCLC. The evaluation of treatment response was based on CT imaging. The relationship between LDH level change and chemotherapeutic efficiency was analyzed. Impact on long-term survival and correlation was analyzed. Results: At diagnosis, the median LDH level in our 157 SCLC patients was 246 U/l (range 101–1254 U/l). Significant differences in LDH levels were found in limited and expanding groups (186 U/l VS 242 U/l, $P < 0.05$). After first-line chemotherapy, the remissive group showed decreased level of LDH, the progressive group showed increased LDH. In refractory patients, the LDH level will be increased compared to that of remissive period. In the follow-up, we found that prolonging of serum LDH normalization co-related to TTP and OS. In patients who die, LDH levels were significantly higher in the two 3-month period preceding progression compared with the initial two 3-month period ($P < 0.005$). An increase in LDH by at least 145 U/l was found to be associated to a significantly higher probability of disease progression and a significantly reduced probability of survival compared to patients without increasing LDH ($P < 0.05$). In multivariate analyses, the LDH increase was found to be an independent prognostic variable. Conclusions The LDH is a useful biological mark in finding out recurrence and reflecting the therapeutic effect. LDH is an interesting follow-up parameter in SCLC, which may assist in early recognition of disease progression and thus help in risk stratification.