



## Combination of Lappaconitine and Oxaliplatin against Lung Cancer *In Vitro*

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**SUMMARY.** In patients with advanced lung cancer with cancer pain, analgesics were concurrently used with antineoplastic drugs. Few data illuminate the effect of analgesic on therapeutic activity of antitumor agents. Lappaconitine (LA), which was beyond its non addiction analgesic activity, can induce HL-60 cells differentiation and apoptosis. We aim to study the combination effect of lappaconitine and chemotherapy drug oxaliplatin (OXAL) against lung cancer *in vitro*. Cytotoxic effect of lappaconitine and oxaliplatin on A549 lung cancer cells were examined by MTT assay. Lappaconitine- and oxaliplatin-induced apoptosis were detected by flow cytometry. Expression of CyclinE1 and VEGF mRNA were measured by RT-PCR. Ultrastructure change of lung cancer cells was observed by atomic force microscopy. LA could inhibit the proliferation of A549 cells with a dose-dependent character. The inhibitory rate of A549 induced by LA combined with OXAL was significantly increased. LA might increase the cytotoxic and apoptotic effect of OXAL in A549 cells. Combined with LA, apoptotic change of OXAL on lung cancer cells was increased. Furthermore, LA alone or together with OXAL can induce G1/G0 arrest through inhibiting CyclinE1 mRNA expression. LA alone or together with OXAL might downregulate VEGF-A mRNA expression. Compared with oxaliplatin alone, the combination of lappaconitine and oxaliplatin against A549 lung cancer cells might be related to synergistic apoptotic effect, and was perhaps associated with downregulation of CyclinE1 and VEGF-A expression.

**KEY WORDS:** Analgesics, Lappaconitine, Lung cancer, Oxaliplatin.

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