Influence of chitosan nanoparticle-mediated 
C-erbB-2 gene silencing on invasion and 
apoptosis of Hep-2 cells

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ABSTRACT. We aimed to measure the invasion ability of Hep-2 laryngeal cancer cells after treatment with C-erbB-2-small interfering RNA (siRNA)-chitosan nanoparticles, and assess the applied value of chitosan nanoparticle-mediated C-erbB-2 interference in inhibiting laryngeal cancer invasion and metastasis. Nanoparticles of approximately 100 nm, comprising C-erbB-2 siRNA packaged with chitosan, were prepared and used to treat Hep-2 cells. Silencing of C-erbB-2 was detected by western blot and polymerase chain reaction. Cell invasion and apoptosis were estimated by transwell assay and flow cytometry, respectively. C-erbB-2-siRNA-chitosan nanoparticles
significantly down-regulated \textit{C-erbB-2} expression in Hep-2 cells (P < 0.05), and cell invasion was noticeably decreased. Moreover, they significantly induced apoptosis of the Hep-2 cells (P < 0.05). Chitosan nanoparticle-mediated \textit{C-erbB-2} gene interference can inhibit the invasion of laryngeal cancer cells and induce their apoptosis.

\textbf{Key words:} Nanoparticles; Chitosan; C-erbB-2; Laryngeal cancer; Apoptosis