How to evaluation of the completeness of cryotherapy in an attempt to quantify initial treatment success

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Background: Immediate evaluation is possible for the percutaneous CT-guided cryosurgery by estimation of Hounsfield units, the size of formed ice-ball, and the percentage of tumor area covered by ice-ball. But, this method is not useful for the patient underwent fluoroscopy-guided or video-assisted thoracoscopic cryosurgery. And, the majority of the lesions are turned into cavitary lesion or necrotic area in the early postoperative periods. So, the aim of this study is to identify the methods and ideal time for the evaluation of the completeness of cryotherapy in an attempt to quantify initial treatment success.

Methods: 52 pulmonary tumors in 34 consecutive patients (29 men and 5 women, median age 63 years, age range; 25-80 years) were treated by cryosurgery. Of the 52 pulmonary masses, 29 masses were primary lung cancers, and 23 masses were metastatic lung cancers. Cryosurgery was performed under computed tomographic, fluoroscopic or video-assisted thoracoscopic guidance. Cryoablation was performed as one or two cycles of 20-minute freeze followed by 5-minute thaw. Follow up chest CT scanning was taken at postoperative 1 month, 3 months and 6 months. We measured the area and Hounsfield units of the mass with computed tomography. And we compare the measured value respectively.

Results: The measured area of the mass is ranged from 141.8 mm² to 3996.8 mm² preoperatively (postoperative 1 month; postoperative 1 month; 68.6-8481.8 mm², 3 months; 32.6-4841.7 mm², 6 months; 45.6-4572.2 mm²). The Hounsfield unit is ranged from 32 to 98 preoperatively (postoperative 1 month; 8-71, 3 months; 24-68, 6 months; 26-98). And, the decrease of the Hounsfied unit of 1 month showed good correlation of the reduction of the area of mass at postoperative 6 months (p-value=0.14). On the contrary, between the change of the Hounsfield unit and the change of the area of mass at 3 months or 6 months showed no correlation statistically.

Conclusion: Postoperative computed tomographic scanning with measurement of Hounsfield unit at postoperative 1 month may be useful for the evaluation of the completeness of cryotherapy in an attempt to quantify initial treatment success.

Safety and efficacy of percutaneous cryosurgery under the ct guidance for the treatment of lung cancer

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Background: Many patients with lung cancer cannot undergo chemotherapy or radiation therapy due to impaired pulmonary function or poor general performance status. Most of them show resistance to these treatments, resulting in continued tumor growth and spreading. In such patients, minimally invasive treatments directed to local tumors may relieve patients from cancer pain or other generalized symptoms. As cryosurgery has been proven to be effective and also safe for cancers in prostate, kidneys, liver and endobronchial obstructive tumors, we sought to evaluate our results and safety of cryosurgery for lung cancer.

Methods: At our hospital, from October, 2004 to December, 2005, 28 patients were treated by cryosurgery. The average age of the patients was 59.8. Of the 28 patients, 18 had primary lung cancer, and 10 had metastatic lung cancers. The average tumor size was 49.9 mm. Cryosurgery was performed using a cryoprobe under CT guidance using local anesthesia. Follow up chest CT scan was taken at post operative day on 1 week, 1mo, 3mo and 6 months, and surgical final outcome was evaluated according to RECIST (complete remission, partial remission, stable disease, and progression).

Results: There were no procedure related mortalities. Postoperative pleural effusion was noted in 1 case (3.5%) and there were 9 cases (32%) of pneumothorax of which 3 needed closed thoracostomies. Small amounts of blood tinged sputum was noted by 15 of the patients (53.6%). Of the 28 patients, 3 patients (10.7%) showed complete remission and six (21.4%) resulted in disease progression. 21 patients (75%) of the patients exhibited response to the cryosurgical procedure.

Conclusions: Cryosurgery for lung cancer can be performed safely under local anesthesia, and patients can be discharged early without se-