

# 早期左乳腺癌保乳术后仰卧位和俯卧位照射的剂量学及放射损伤的比较

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**Title:** Comparison of dosimetry and radiation injury of the supine position and prone position in early left-breast cancer after breast conserving surgery

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**摘要:** 目的: 通过比较早期左乳腺癌保乳术后仰卧位和俯卧位两种不同体位的调强治疗计划中危及器官的剂量学及急性放射损伤方面的差异性, 为临床选择合适的体位固定方式提供依据。方法: 选取2015年01月至2017年12月江苏省中医院收治的36例早期左乳腺癌保乳术后的患者, 其中18例进行俯卧位固定方式的调强放疗, 18例进行仰卧位固定方式的调强放疗, 全乳房剂量为50 Gy/25 f, 2 Gy/f, 5 f/w。后对疤痕周围2 cm给予6 MeV电子线加量10 Gy/2.0 Gy/5次, 5次/周。分别评估仰卧位及俯卧位两种治疗体位的计划中危及器官的剂量及急性放射性损伤的差异性, 并对两组进行随访评估生存。结果: 俯卧位组左肺Dmean (721.5±11.6) cGy、V5 (20.4±1.4) %、V20 (15.3±6.5) %, 心脏平均剂量Dmean (468.6±60.4) cGy、V30 (7.4±5.6) %; 仰卧位组左肺Dmean (632.4±38.6) cGy、V5 (35.5±1.3) %、V20 (21.2±7.9) %, 心脏平均剂量Dmean (532.2±17.9) cGy、V30 (9.1±2.3) %。两组比较有统计学差异 (P < 0.05), 且俯卧位组左肺 Dmean、V5、V20, 心脏平均剂量Dmean、V30优于仰卧位组。仰卧位及俯卧位组的术后2年局部复发率分别为5.6% (1/18), 0% (0/18), 无一例出现远处转移, 无瘤生存率分别为94.4%、100%, 2年生存率都为100%。两组无明显统计学差异 (P > 0.05)。放射损伤方面, 两组均未出现肺及心脏的急性放射性损伤, 皮肤反应方面, 均为1级皮肤反应, 无一例出现2级及2级以上的皮肤损伤。俯卧位组及仰卧位组的皮肤损伤无明显差异。结论: 相比于仰卧位放疗, 在不减低生存的情况下, 俯卧位放疗对肺及心脏保护得更好, 且对皮肤的保护不劣于仰卧位组。

**Abstract:** Objective: By comparing the differences in the dosimetry and radiation injuries of two different positions in the treatment plan of supine position and prone position in the early left-breast (L-breast) cancer after breast conserving surgery, to provide the basis for the clinical selection of suitable postural fixation. Methods: A total of 36 patients with early left breast cancer receiving breast conserving surgery, were selected, including 18 patients with supine radiotherapy and 18 patients with prone radiotherapy. The radiotherapy plans were all breast doses 50 Gy/25 f, 2 Gy/f, 5 f/w, and the sequential boost doses 10 Gy/5 f, 2 Gy/f, 5 f/w. To assess the difference between the dose of organs at risk and the radiation injury with different position. Results: The following indicators compared the two groups were statistically significant (P < 0.05): Left lung Dmean, V5, V20, heart Dmean, V30. Left lung Dmean (721.5±11.6) cGy, V5 (20.4±1.4) %, V20 (15.3±6.5) %, heart Dmean (468.6±60.4) cGy, V30 (7.4±5.6) % in prone group. Left lung Dmean (632.4±38.6) cGy, V5 (35.5±1.3) %, V20 (21.2±7.9) %, heart Dmean (532.2±17.9) cGy, V30 (9.1±2.3) % in supine group. In the two groups, 2-year local recurrence rates were 5.6% (1/18) and 0% (0/18) respectively, no distant metastasis was found. The local control rate were 94.4% and 100%, the 2-year survival rate was 100%. There was no statistically significant difference between the two groups (P > 0.05). In the aspect of radiation injury, in both groups there was no acute radiation injury of the lung and heart, and the skin reaction was all 1 stage skin

reaction,there was no skin reaction of level 2 or above.There was no significant difference between the skin reaction of the prone and supine groups.Conclusion:Compared to the supine radiotherapy,prone position radiotherapy is better for the protection of left lung and heart,and the skin damage is not inferior to the supine group in the absence of reduced survival.

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