

## <sup>125</sup>I 粒子植入照射对纤维肉瘤S180 瘤株的治疗作用及其机制

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### Therapy Efection and Mechanism of S180 Tumor Cell by <sup>125</sup>I Seed Implantation

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**摘要** 目的 探讨<sup>125</sup>I 粒子植入内照射治疗对纤维肉瘤S180瘤株的疗效及其治疗机制。方法本试验选用纤维肉瘤细胞S180株,通过36只雄性昆明种小鼠,建立纤维肉瘤动物模型,随即分成3组:对照组、外放疗组、<sup>125</sup>I 粒子内放疗组,每组12只小鼠。外放疗组采用直线加速器照射200cGy/次,剂量率为210cGy/分,1次/d,共3次。<sup>125</sup>I 粒子内放疗组通过特制长穿刺针将<sup>125</sup>I 粒子插入小鼠瘤体内,其中6只小鼠植入1个粒子,另外6只小鼠植入2个粒子。外放疗组照射后6、30、54h取材,内放疗组于粒子植入后4、8d取材,瘤体标本用甲醛固定,用原位末端标记法(TUNEL法)检测凋亡细胞,测定凋亡指数(AI),用免疫组化方法检测p53蛋白。结果 (1)对照组未经治疗,也可发生自发性凋亡,但凋亡出现时间较晚,凋亡指数较小。(2)外放疗可以诱导细胞凋亡,且随着时间推移,凋亡指数有所增加。(3)<sup>125</sup>I 粒子植入内照射治疗可以诱导S180纤维肉瘤细胞凋亡,凋亡指数达到峰值的时间在4d左右,且随着植入粒子的增多,照射剂量的增加,细胞凋亡指数也随着增加。2个粒子内照射组与1个粒子内照射组比较,4、8dP均<0.05。(4)p53免疫组阴性。结论 (1)S180瘤株对放疗敏感性较差,其放疗敏感性与突变型p53状态无关。(2)<sup>125</sup>I 粒子植入内照射和外放疗一样,可诱导纤维肉瘤S180瘤株细胞凋亡,而且随着植入粒子的增多,凋亡指数也随之增加,有显著杀伤作用,其诱导细胞凋亡机制与突变性p53基因状态无关。(3)<sup>125</sup>I 粒子植入照射是治疗肿瘤的一种有效方法。

**关键词:** <sup>125</sup>I 粒子植入照射 S180 瘤株 放疗 凋亡

**Abstract:** Objective Therapy efection and mechanism of S180 tumor cell by <sup>125</sup>I seed implantation. Methods The study use S180 tumor cell ,36 male Kunming mice were divided into 3 groups in random , 12 mice each group :cont rast ,radiation and <sup>125</sup>I seed implantation. Radiation :4-MV X-ray ,200 cGy/ fraction ,three f raction. <sup>125</sup>I seed implantation :insert the seed into the mouse tumor using the special-made needle. One seed was implanted into six mice ,two into another six mice. The model mice of radiation were sacrificed at 6h ,30h and 54h. The model mice of seed implantation were sacrificed at 4 d and 8 d. The fresh tumor tissue sample were examined apoptosis by TuNEL ,measured the apoptois index ( AI) and p53 were measured by immunocytochemistry. Results (1) The cont rast group can also have spontaneous apoptosis without t reament . But the apoptosis appeared late with lower apoptosis index. (2) Radiation can induce cell apoptosis and the apoptosis index increased with the time went by. (3) <sup>125</sup>I seed implantation can induce S180 cell apoptosis. The peak value within 4 d and with the increase of implanted seed ,the AI increased. The comparsion between 2 seeds and 1 seed has significant difference within 4 d and 8 d ( P < 0. 05) . (4) p53 count not be found in S180 tumor cell. Conclusion (1) S180 tumor cell are less sensitive to radiation. The radiosensitivity is not realated to mutated-type p53 (mtp53) . (2) <sup>125</sup>I seed implantation and radiation all can induce S180 tumor cel apoptosis. The induced apoptosis mechanism is not related to mutated-type p53. (3) <sup>125</sup>I seed implantation is effective method in the t reament of carcinomas.

**Key words:** Iodiane-125 Implantation radiation S180 tumor cell Radiation Apoptosis

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