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瞬时波强参数评价头颈部肿瘤患者放疗后颈动脉弹性

Assessment of carotid elasticity after radiotherapy in patients with head and neck tumor by using wave intensity parameters

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中文摘要:

目的: 探讨瞬时波强(WI)参数评价头颈部肿瘤患者放疗后颈动脉弹性功能变化的价值。方法: 选择放疗后头颈部肿瘤患者38例作为放疗组,另选择健康志愿者38名作为对照组,应用WI技术检测其颈总动脉,采集WI相关参数,包括瞬时加速度波强(W1)、瞬时减速度波强(W2)、僵硬性(β)、弹性系数(Ep)、顺应性(AC)、脉搏波传导速度(PWV β)。比较放疗组和对照组参数的变化,分析W2与放疗剂量、距离放疗时间的相关性。结果: WI参数中,放疗组 W2、 β 、Ep、PWV β 较对照组明显增高,AC较对照组降低,差异均有统计学意义($P < 0.05$);放疗组W1与对照组相比差异无统计学意义($P > 0.05$)。W2与放疗剂量、距离放疗时间呈正相关($r = 0.380, 0.433, P = 0.018, 0.007$)。结论: 头颈部肿瘤患者放疗后颈动脉弹性功能较正常人下降,WI参数可为早期预防放疗引起的颈动脉狭窄提供依据。

英文摘要:

Objective: To explore the clinical value of wave intensity (WI) parameters in evaluating changes of carotid elasticity after radiotherapy in patients with head and neck tumor. **Methods:** Thirty-eight patients with head and neck tumor after radiotherapy were enrolled as radiotherapy group, while 38 healthy volunteers were considered as control group. Both of them took WI examinations, and WI curves of the common carotid arteries were recorded. WI parameters of WI curve were automatically measured, including value of the first positive peak (W1), value of the second positive peak (W2), stiffness parameters (β), pressure-strain elastic modulus (Ep), arterial compliance (AC) and pulse wave velocity (PWV β). The parameters were compared between the two groups. The correlation between W2 and radiation dose, W2 and the time interval after radiotherapy were analyzed. **Results:** W2, β , Ep, PWV β in radiotherapy group increased compared with those in control group (all $P < 0.05$). Compared with control group, AC in radiotherapy group decreased significantly ($P < 0.05$). There was no significant difference of W1 between the two groups ($P > 0.05$). W2 in radiotherapy group had positive correlation with radiation dose and the time interval after radiotherapy ($r = 0.380, 0.433, P = 0.018, 0.007$). **Conclusion:** The carotid elasticity after radiotherapy in patients with head and neck tumor decreased compared with healthy subjects. WI parameters may provide basis for early prevention of radiation-induced carotid stenosis.

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