

高能电子束超剂量照射与效应关系的探讨——人周血淋巴细胞核损伤指标的比较观察

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摘要 为了探讨在大剂量辐射条件下建立生物量计的可能, 本实验研究了在10MeV电子束照射后, 人体外周血淋巴细胞各种核损伤指标的改变与剂量(0—40Gy)间的关系, 结果表明, 随着照射剂量的增大, 复合核损伤指标——核异常率、微核率、核固缩率和核裂解率亦随之上升, 在0—20Gy范围内, 与剂量呈线性关系, 相关系数显著性检验 $P < 0.01$ 的核损伤指标是: 核异常率、微核率。 $P < 0.05$ 的是核变形度; 在—40Gy范围内, 与之呈线性关系, $P < 0.01$ 的仅有核固缩率。和染色体畸变分析相比, 核异常检测方法简例, 可反映超剂量(如 $> 10Gy$)辐射的损伤, 值得引起研究者的注意。

关键词 [高能电子束, 过量照射, 剂量效应关系, 人淋巴细胞, 核损伤](#)

分类号

Preliminary studiea of Dose---effect Relationship in Overdose Irradiation if Electron Beam with High Energy----Com. parative Observation of Several Indices of Nuclar Damage in Lymphoctye of Human Peripheral Blood

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Abstract

<P>In this paper we studied the relationship between doses a(5----40GY)and indices of nuclear damage in lymphocyte of human peripheral blood irradiated by 10 Mev of electron beam to explore possibilly of establishing biososimeter of overdose irradiation. The main results are as cleus (INF) ,the frequency of micronucleated cell (MNCF) ,the frequency of irregular nucleus (KNF) and the frequency of pyknotic nucleus (NAF=MNCF+INF+PNF+KNF)increased along with increase of irradiation dose. Within the range of,0_—^{20GY}</SUB>indices of nuclear damages which were linear with irradiation dose. are NAF ($P < 0.01$),MNF($P < 0.01$),INF($P < 0.05$) and KNF ($r = 0.8972$), $P > 0.05$). Within the range of .0_—40GY the index of nuclear damage which was linear with irradiation dose was PNF ($P < 0.01$)alone .(2) As compared with chromosome aberration analysis nuclear anomaly tset is a more rapid and convenient assay,and can detect overdose radiation damage using chromosome analysis.</P><P></P>

Key words [Electron bean with high energy](#) [Overdose irradiation](#) [Dose--effect rela-tionship Human lymphocyte Nuclear damage](#)

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