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The injurious effects of inhalation injury serum on pulmonary microvascular endothelial cells in rats*

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Abstract The establishment of the method to culture pulmonary microvascular endothelial cells (PMVECs) is important for the study of inhalation injury. In this study, PMVECs were isolated from the murine lungs with elastinase digestion and cultured for 5 d~6 d to result in fusion of the cells. After the cultured PMVECs were stained with immunohistochemical technique, it was found that 90 out 100 cells were PMVECs. Then the serum of the rats with smoke inhalation injury was added to the cultured PMVECs. It was found that the levels of NO and LDH were increased and the serum could induce obvious changes of secretory function of PMVECs. Meanwhile, there was a significant decrease of intracellular cAMP and an increase of calcium ions, which indicates the impairment of the messenge-mediation system. These findings suggest that PMVECs are the important target of inhalation injury.

Key words pulmonary microvascular endothelial cell; inhalation injury; cell culture; rat

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大剂量复合微量营养素制剂对快速提高人体微光近视力的作用

The effect of oral administration of large dose micronutrient complex on rapid increase of visual acuity reduced light

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为了改善和提高低照度作业部队的暗适应功能,我们已试验了3种供平时每日补充的营养制剂(生理剂量),其中以复合维生素加锌的效果最好[1],为此,本实验采用该配方组合,但加大剂量,查明其对快速提高人体微光近视力的作用。

1 实验方法

选择视力正常,身体健康,年龄18岁~20岁,男性战士10名。进行3 d膳食调查,以了解受试者营养情况。以微光近视力(夜间视力)测定为检查人体暗适应功能指标。实验前测定一次作为基础值,然后一次口服大剂量复合微量营养素制剂(V_A 5万IU、V_{B1} 9 mg、V_{B2} 10 mg、V_{PP} 30 mg、V_C 300 mg、锌30 mg)。于服药后2、4、8、11、21、45、69和93 h分别测定上述指标,以观察其效果。膳食调查用称量法,查食物成份表[2]计算主要营养素摄取量。微光近视力用YAK-1型暗适应客观检查仪测定,该仪器由空军第四研究所研制。测定时减光旋扭转至1,记录看清视标中E表(第4行,0.4)缺口方向的时间(s)。

2 结果

2.1 膳食调查结果见表1

表1 每人每日膳食营养素摄取量

热能(KCal)	蛋白质(g)	维生素A(IU)	维生素B_1(mg)	维生素B_2(mg)	维生素C(mg)	锌(mg)
2960	80.6	1600	1.4	1.02	105	6.54

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A study of mechanism of infertility in endometriosis

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Abstract　Forty-four patients with endometriosis (EM) were examined with laparoscopy to observe the ovulation of the ovaries and to determine the concentration of $PGF_{2\alpha}$ and PGE_2 in plasma and peritoneal fluid. At the same time, the patency of the oviduct was tested. It was found that the incidence of partial and complete tubal obstruction was 38.7% and the negative rate of ovulation was 32.3%. The concentration of $PGF_{2\alpha}$ and PGE_2 in the peritoneal fluid was significantly higher than that in the plasma in patients with EM and it was higher in patients with EM than in the normal controls. Our findings suggest that the infertility in EM results from various factors.

Key Words　endometriosis; infertility; peritoneal fluid; prostaglandin

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2.2 微光近视力测定结果见表 2

表 2　微光近视力测定 ($\bar{x}\pm s$)

	实验前	口服大剂量微量营养素后 (h)							
		2	4	8	11	21	45	69	93
时间 (s)	56.7± 20.05	36.2± 13.31*	36.1± 14.49*	30.7± 6.79**	23.3± 6.83**	22.2± 7.83**	21.8± 10.57**	31.3± 7.89**	33.6± 9.31*
提高 (%)		36.2	36.3	45.9	58.9	60.9	61.6	44.8	40.7

*:与实验前比较, $P<0.01$,**:与实验前比较, $P<0.001$

由上表可见微光近视力于服药 2 h后,即有明显提高,最佳作用时间为 45 h,至 93 h虽有所下降,但与服药前比差异仍非常显著,提高率为 36.2%～61.6%。

3 讨论

暗适应与维生素 A有关,但近期研究报道,已查明除 V_A 外,尚有蛋白质、VB_2、Zn或 Se[3]。微量营养素制剂的配方,较全面的考虑到影响暗适应的有关因素。实验结果证明,对快速提高暗适应功能,取得了满意的结果。此配方优于单纯大剂量 V_A[4],也优于复合维生素制剂[5],可能由于含有锌的关系。据调查我军膳食中锌处于缺乏状态,而锌对暗适应功能的调节起重要作用。现已知 V_A的吸收和运输均与锌有关,此外,视网膜中视黄醇异构为视黄醛,需要一种含锌酶——视黄醇脱氢酶的参与,缺锌时此酶活性下降,从而影响暗适应功能。综上所述,本制剂配方,考虑较全面,1效果较好,可为低照度作业部队、快速反应部队在应急情况下使用。

关键词　复合微量营养素;微光近视力
中图法分类号　R151.2; R778.11

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