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제목	국문	게임방 사용자의 상지의 누적 외상성 장애에 대한 단면적 연구			
	영문	Cumulative trauma disorders of the upper limbs in young male Korean PC game room users			
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<p>1. 목적</p> <p>Personal computer (PC) game rooms are commercial facilities equipped with high performance PCs connected to the Internet and widespread in Korea. Use of PCs can cause health problems, including cumulative trauma disorder (CTD) of the upper limbs. This study was performed to investigate whether using PCs in PC game rooms may induce CTD of the upper limbs.</p> <p>2. 방법</p> <p>Two hundred and eighty-four young male Koreans, from 17 to 29 years of age, were included in this study. One hundred and eighty-four subjects were recruited among the visitors of two PC game rooms, and 100 participants were volunteers from a nearby university. Information about demographic factors, game room use, and perceived subjective stress was collected using a self-administered, structured questionnaire. Questions on the presence, duration and severity of CTD symptoms including pain, aching, burning, tingling and numbness of the upper limbs, were also included in the questionnaire. Spot urine was collected from each study subject and urinary concentrations of epinephrine, norepinephrine and dopamine were measured using a high performance liquid chromatography system.</p> <p>3. 결과</p> <p>CTD in the upper limbs was found in 25 (22.1%) of 113 subjects who use game rooms for less than one hour per day, in 25 (25.0%) of 100 subjects who use game rooms for one to two hours per day, and in 24 (34.8%) out of 69 subjects who use the rooms for more than two hours per day. The prevalence of CTD in the upper limbs increased with an increase in the duration of game room use per day with marginal significance (chi-square for trend = 3.369, p value=0.066). The prevalence of CTDs in the neck, wrists and fingers increased according to an increase in the duration of game room use. The intensity of perceived subjective stress showed a significant dose-response relationship with the frequency of CTD in the upper limbs. The odds ratio was 1.60 for subjects feeling minimal stress, and 5.97 for subjects perceiving severe stress. The urinary concentrations of epinephrine,</p>					

norepinephrine, and dopamine did not show any significant correlation with the duration of game room use or with perceived subjective stress.

A multiple logistic analysis including age, hours of game room use, perceived subjective stress, and urinary concentrations of epinephrine, norepinephrine, and dopamine was performed. Duration of game room use was a significant determinant of CTD in neck, elbow, wrist and finger areas. Perceived subjective stress, however, was a significant risk factor for CTD in the neck and shoulder areas. Age of subjects was statistically significant for CTD in the elbows and fingers, and urinary norepinephrine concentration for CTD in the wrist area.

4. 고찰

The CTD of neck and shoulder areas showed a significant correlation with the intensity of perceived subjective stress and it is not likely that the perceived stress of the subjects in this study was job-related. The urinary concentrations of stress hormones did not show any significant correlation with the duration of game room use or with perceived subjective stress. These results suggest that psychological stress, whether job-related or not, can cause CTDs in neck or shoulder areas, and that perceived stress is a more important determinant of the CTDs in the upper extremities than the level of sympathetic nervous activity.

Considering the characteristics of this study subjects, the prevalence of CTD in this study is much higher than expected especially in high game room use group. And the duration of game room use revealed to be a significant determinant of CTD in neck, elbow, wrist and finger areas. These results suggest that playing PC games in game rooms would produce strong physical stress on the upper limbs, enough to induce CTD of the upper extremity area.