

# 慢性維持透析患者における筋痙攣の要因に関する疫学的研究

医療保健学研究科 医療保健学専攻 医療保健情報学

遠山範康

**BACKGROUND.** One of the various pains that dialysis patients suffer in dialysis therapy is muscle cramp. Muscle cramp is also one of the factors of lower the patient's quality-of-life. There are various possible factors of muscle cramp during dialysis therapy, however, the cause of this has not yet known. At present, the preventive measures are taking Shakuyakukanzoto, etc., however, the patients always suffer from muscle cramp on dialysis therapy. In this study, we investigate epidemiologically the effects of dialysis conditions and treatment conditions of developing muscle cramp.

**OBJECTIVE.** The purpose of this study is to find the factors of muscle cramp by analyzing the relationship between the developing muscle cramp during dialysis therapy and each factor such as dialysis conditions. As a result, by finding a specific intervention method to prevent muscle cramp, it is expected that the results of this study will contribute to reducing pains during dialysis therapy and improving patient's quality-of-life.

**DESIGN.** Matched case-control study with environmental factors.

**METHODS.** We conducted a case-control study to find the factors of the developing muscle cramp in chronic maintenance dialysis patients who took dialysis therapy from January 2016 to August 2019 at four medical facilities in the Kanto area. We selected the dialysis therapies with the developing muscle cramp as cases. For each case, two controls were randomly selected from patients taking dialysis therapy on the same day and the same facility as the case. Furthermore, we collected data on the attributes, the dialysis records, and the blood tests for the selected patients from medical records. Thereafter, the relationships between the developing muscle cramp and each factor were evaluated using conditional logistic regression analysis and conditional multivariate logistic regression analysis.

**RESULTS.** In this study, 348 patients were collected (case:116, control:232). The number of men was 72 (62%) in case group and 181 (78%) in control group. The average of age was 68.10 in case group and 69.62 in control group. The average of time when the patients developed muscle cramp was 206.93 minutes from the beginning of therapy. The average of blood pressure (systolic blood pressure / diastolic blood pressure), blood flow rate, ultrafiltration rate, and accumulated water removal amount were 127.71 / 74.63 mmHg, 189.44 mL / min, 0.68L / h, and 2.65L, respectively, at the time immediately before the developing muscle cramp. The results of conditional multivariate logistic regression analysis show that the factors of developing muscle cramp were low height (regression coefficient -0.0393,  $P = 0.0394$ ), high phosphorus in blood tests (regression coefficient 0.2448,  $P = 0.0367$ ), and sudden decrease in diastolic blood pressure (regression coefficient -0.0695,  $P = 0.0019$ ).

**CONCLUSIONS.** The factors of muscle cramp were "low height", "high phosphorus", and "sudden decrease in diastolic blood pressure".