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COLLES' FRACTURE AS A RISK FACTOR FOR SUBSEQUENT HIP FRACTURES: AN ASIAN POPULATION BASED STUDY

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Aims: This study explored whether Colles' fracture increases the subsequent hip fracture in a short-term period (within one year) in Asian population.

Methods: Our study extracted data for patients with newly diagnosed Colles' fracture in 2000-2006 from records of both ambulatory care and inpatient care as the exposure cohort. A non-exposure cohort for comparison was randomly selected from patients without Colles' fracture by the ratio of 1:8 frequency matched to the year the patient with Colles' fracture identified. The study subjects were followed up for one year, since they had been identified into the cohorts, to measure the incidences of hip fracture for both cohorts. The study subjects might be censored within one year because of incident hip fracture, death, or lost to follow-up. Data analyses first measured the incidence of Colles' fracture in the study period of 2000-2006 to observe the distribution of the incident cases by sex and age. Colles' fracture cohort to non-Colles' fracture cohort incident rate ratios of the hip fracture were calculated. Hazard ratios (HRs) and 95% confidence intervals (CI) for factors associated with the hip fracture risk were calculated using three Cox proportional hazard regression models. The model 1 was conducted for the estimates of crude HRs associated with socio-demographic factors, and Colles' fracture and osteoporosis. Model 2 used multivariate Cox proportional hazard regression for adjustment. Model 3 attempted to identify the interaction between Colles' fracture and osteoporosis.

Results: The hip fracture incidence in the Colles' fracture cohort was 6 times as high as that in the comparison cohort (56.0 vs. 9.3 per 10,000 person-years). The Colles' cohort to non-Colles' cohort rate ratios was much higher in females than in males among those had experienced the Colles' fracture. The Colles' cohort had the highest incidence of in the first month after the episode, which was 17 times higher than the corresponding counter part of cohort (17.9/10,000 vs. 1.05/10,000). Regarding the HRs of hip fracture in relation to Colles' fracture before and after controlling for covariates, the HR of hip fracture increased with age in all 3 Cox's proportional hazard regression models. The model 2 also shows that both Colles' fracture and osteoporosis were significant independent factors that predicted hip fracture. However, the model 3 shows that the hazard of hip fracture was much greater for patients with Colles' fracture (HR, 6.59; 95% CI, 4.74 to 9.17) than for patients with osteoporosis (HR, 4.30; 95% CI, 2.95 to 6.26). The hazard of hip fracture increased further for patients with osteoporosis and had experienced Colles' fracture (HR, 7.73; 95% CI, 4.72 to 12.7).

Conclusions: Patients with Colles' fracture are at higher hazard than patients with osteoporosis to have the subsequent hip fracture. Colles' fracture and osteoporosis may additively increase the hazard of hip fracture.

Disclosure of Interest: None Declared

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