



Commentary

Does acupuncture reduce the risk of acute myocardial infarction?

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1. Focal article

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2. Aim

To compare the risk of acute myocardial infarction (AMI) during follow-up between an acupuncture exposure group and a nonexposure group of stroke patients.

3. Study design and data source

A nationwide retrospective cohort study was conducted. The data source was the Taiwan National Health Insurance Research Database, which was established in 1995 and covers 99% of residents in Taiwan.

4. Study population

For this study, 182,619 new-onset stroke survivors aged 40–79 years who were hospitalized primarily because of stroke were screened. The admission dates ranged from January 2000 to December 2004. Among those screened, 23,475 patients who received at least one acupuncture treatment course (i.e., six continuous acupuncture treatments) were selected.

5. Exposure (acupuncture) and nonexposure group

The ratio of the exposure to the nonexposure group was 1:2

- (1) Exposure group: 23,475 patients who received at least one acupuncture treatment course.
- (2) Nonexposure group: 46,950 patients who did not receive acupuncture treatment were matched according to propensity score, with a 0.2 standard deviation of the log odds scale for propensity scores.

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6. Follow-up duration

Follow-up time was calculated as person-years until AMI diagnosis. To avoid immortal time bias, the time from hospital discharge to the first acupuncture treatment was defined as the immortal time.

- (1) Exposure group: followed up from the first acupuncture treatment date until December 31, 2009, or censored.
- (2) Nonexposure group: followed up from the discharge date after stroke until December 31, 2009, or censored.

7. Confounding factors

Age, sex, income, stroke subtype, coexisting medical condition (hypertension, diabetes, mental disorder, traumatic brain injury, hyperlipidemia, cardiac arrhythmia, Parkinson's disease, depression, Alzheimer's disease, obesity, and malignant brain tumors), hospital stay length, undergoing neurosurgery, intensive care unit admission, cardiovascular medication (antiplatelet, lipid-lowering agent, and anticoagulant), smoking cessation, and rehabilitation.

8. Main outcome measures

Adjusted hazard ratio analyzed using the multivariate Cox proportional hazard model.

9. Main results

- (1) No significant differences were observed between the exposure and nonexposure groups in terms of all the confounding factors at baseline.

- (2) Risk of AMI: The stroke patients in the exposure (acupuncture) group had a lower incidence of AMI than those in the nonexposure group (9.2 per 1000 person-years vs. 10.8 per 1000 person-years). The adjusted hazard ratio was 0.86 [95% confidence interval (CI), 0.80–0.93].
- (3) Dose-response relationship in acupuncture treatment: Increase in the number of acupuncture treatment sessions was associated with a reduced risk of AMI. A dose-response relationship was also observed. The HR of the risk of AMI of the patients who received more than 15 acupuncture treatment courses was 0.61 (95% CI, 0.51–0.73). AMI incidence reduced from 11.2 to 6.7 per 1000 person-years (Table 1).

10. Authors' conclusions

The stroke patients who received acupuncture treatments seemed to have a lower risk of AMI than those who did not receive acupuncture treatments.

11. Comment/critique

Even though this nationwide cohort study was preliminary, it demonstrated that acupuncture seemed to reduce the risk of AMI in stroke patients. A dose-response relationship was observed. In the original article, the authors suggested several possible explanations.¹ Firstly, according to a previous research study, acupuncture treatment enhanced the physical movement capacity of stroke patients. As higher cardiorespiratory fitness and physical activity are inversely correlated with the risk of AMI,² AMI risk reduction of stroke patients in the acupuncture group is reasonable. The authors also explained that the heart rate reduction effect,³ lipid profile-lowering effect,⁴ antidepressant effect,⁵ and increased

Table 1 – Number of acupuncture treatments and risk of acute myocardial infarction in stroke patients.

| No. of acupuncture treatment course | Events | Person-y | Incidence* | HR | 95% CI† |
|-------------------------------------|--------|----------|------------|------|-------------|
| 0 | 2,978 | 265,756 | 11.2 | 1.00 | (reference) |
| ≥1 | 1,054 | 106,663 | 9.9 | 0.86 | (0.80–0.93) |
| ≥2 | 733 | 81,701 | 9.0 | 0.79 | (0.73–0.86) |
| ≥3 | 550 | 66,789 | 8.2 | 0.73 | (0.67–0.80) |
| ≥4 | 449 | 56,537 | 7.9 | 0.71 | (0.64–0.78) |
| ≥5 | 374 | 49,103 | 7.6 | 0.68 | (0.61–0.76) |
| ≥6 | 330 | 43,027 | 7.7 | 0.69 | (0.62–0.77) |
| ≥7 | 276 | 38,333 | 7.2 | 0.65 | (0.58–0.74) |
| ≥8 | 249 | 34,381 | 7.2 | 0.66 | (0.58–0.75) |
| ≥9 | 220 | 31,218 | 7.0 | 0.64 | (0.56–0.74) |
| ≥10 | 199 | 28,312 | 7.0 | 0.64 | (0.56–0.74) |
| ≥11 | 184 | 26,153 | 7.0 | 0.64 | (0.55–0.74) |
| ≥12 | 169 | 24,206 | 7.0 | 0.64 | (0.55–0.75) |
| ≥13 | 151 | 22,417 | 6.7 | 0.62 | (0.52–0.73) |
| ≥14 | 143 | 20,854 | 6.9 | 0.63 | (0.53–0.77) |
| ≥15 | 130 | 19,545 | 6.7 | 0.61 | (0.51–0.73) |

p (Cochran–Armitage test) < 0.0001.

* Per 1000 person-years.

† Adjusted for confounding factor.

CI, confidence interval; HR, hazard ratio.

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