

# Background features of accidental drowning in bath

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**Objective.** In Japan, bathing in bathtub is more popular than that in western countries. Unfortunately, accidents relating bathing have been as many as that the fatal course numbered to ten and several thousand every year, which is considered as about 4 times more than fatal traffic accidents. Suspected background of bathtub drowning is examined from the recent works and literatures.

**Methods.** Seven cases transported to our hospital because of bathtub drowning during these 7 years are examined. Search for English and Japanese literature in this quarter-century with key words including bathing, bathtub, accident, drowning, fatality, warming, and brain blood flow was done. Consideration was mainly based on the 2012~2013's works supported by Health Labor Sciences Research Grant, Japan, in which Japanese Society of Balneology, Climatology, and Physical Medicine (BCPM) participated.

**Results.** In the 7 cases, no clear acute organic brain or heart diseases was observed. In the literature, ambulance transport relating to bathing were clearly more in elderlies, and not necessarily in winter. Most cases were found in and rescued from bathtub; it was the same when limiting the cases to recovered ones, and they experienced dizziness or unconsciousness in bathtub. When comparing elderly to youth in experimental bathing, changes in body temperature, sweating, skin blood flow, and pulse rate were smaller in elderly, but blood pressure increased more severely. Brain blood flow, especially which in frontal area, increased after experimental bathing, and a prompt decrease was observed at standing.

**Discussion.** If assuming that recovered and fatal cases showed a series of events, after blood pressure and brain blood flow increased during bathing, standing/changing body position with head-up could suddenly decrease brain blood flow causing unconsciousness, especially in elderly.