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**Traumatic Injury and Dementia in  
New Zealand: A Palmerston North Hospital  
Case-Control Study**

A thesis presented in partial fulfilment of the requirements for the degree of

Masters of Health Science

in

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## Abstract

Little is known about the relationship between traumatic injury (TI) and dementia. The increasing prevalence of both conditions in the world and in New Zealand (NZ) drove the Author to want to investigate whether the pathophysiological consequences of major trauma of any kind - mostly due to falls in the dementia population - and not just traumatic brain injury (TBI), may result in dementia.

Both TI and dementia constitute major health and socio-economic problems contributing to long-term disability worldwide and have important implications for health service delivery and for medico-legal compensation issues. The first specific objective was to determine whether dementia was associated with an increased risk and incidence of trauma in the past and whether such an association might be explained by the injuries or by medical comorbidities. The second specific objective was to identify whether there were any differences in the mechanisms of injury and type of discharge from hospital between cases and controls. The research was a non-experimental, retrospective, hospital-based, case-control study. Cases and controls were selected from the Palmerston North Hospital (PNH) acute admissions database and were matched in terms of exposure to traumatic injury, sex, age, ethnicity, and recorded comorbidities. Statistical and epidemiological analyses were done using Raosoft<sup>R</sup> and MedCalc<sup>R</sup> softwares.

All medical conditions were operationally defined using the current World Health Organization's International Classification of Diseases (ICD-10). The results showed that a history of TI was more frequently found in cases with dementia than in the controls. Patients with dementia and TI were more likely to have preexisting comorbidities and were more unlikely to be discharged to their previous habitual residence. The findings strongly indicate that the brain is affected by the way the body responds to TI both locally and systemically. The conclusion was that the direct and indirect consequences of TI, mostly due to falls, could constitute a plausible risk factor for the development or progression of dementia but that further research is needed to assess what type of trauma and what type of dementia could be involved in the association, one that is likely to be multifactorial in the elderly population.

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