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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 Psychology at Massey University, Palmerston North New Zealand

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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 comorbidites. Statistical and epidemiological analyses were done using RaosoftR and MedCalcR 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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Table of Contents

Abstract iii
Acknowledgements iv
Table of Contents v
List of Tables and Figures vii

Chapter 1. An Overview of the Topics 1
1.1. Traumatic Injury 1
1.1.1. Falls 2
1.2. Dementia 3
1.2.1. Definition of dementia 3
1.2.2. Types of dementia 4
1.3. The New Zealand Central Region 5
1.3.1. Introduction 5
1.3.2. The Central Region: Structure and demographics 7
1.3.2.a. Gender 8
1.3.2.b. Age 9
1.3.2.c. Ethnicity 11

Chapter 2. Health Status of the Central Region 12
2.1. Hospitalisations 12
2.2. Mortality Rates from Non-Communicable Diseases 15

Chapter 3. Traumatic Injury 19
3.1. Introduction 19
3.2. Traumatic Injury in New Zealand 20
3.3. Trauma and Geography in New Zealand 22
3.4. Trauma Morbidity 23
3.4.1. Trauma risk factors 25
3.5. Trauma Clinical Management Implications 27
3.6. The Cost of Traumatic Injury 29
3.7. Traumatic Injury Disability in New Zealand 32
3.7.1. Disability in residential facilities 34
3.7.2. Traumatic injury disability and ethnicity 34

Chapter 4. Falls 37
4.1. Introduction 37
4.2. Falls Risk Factors 40
4.2.1. Intrinsic risk factors 42
4.2.1.a. Age-related changes 43
4.2.1.a.1. Instability 43
4.2.1.a.2. Sensory deterioration 44
4.2.1.a.3. Modifications of the locomotor system 44
4.2.1.a.4. Fear of falling 45
4.2.1.b. Falls risk conditions 46
4.2.1.b.1. Chronic disorders 47
4.2.1.b.2. Acute disorders 48
4.2.1.b.3. Visual impairment 48
4.2.2. Extrinsic risk factors 49
4.2.2.a. Iatrogenic factors 49
4.2.2.b. Alcohol 50
4.2.2.c. Lifestyle factors 51
4.2.2.c.1. Activity levels 51
4.2.2.c.2. The environment 51
4.3. Falls in Rest and Nursing Homes 52
4.4. Falls and Death 54

Chapter 5. Dementia 55
5.1. Definition of Dementia 55
5.2. Types of Dementia 56
5.2.1. Classification by aetiology 56
5.2.2. Classification by prevalence 56
5.2.2.a. Alzheimer’s disease 57
5.2.2.b. Vascular dementia 57
5.2.2.c. Dementia with Lewy bodies 58
5.2.2.d. Fronto-temporal dementia (Pick's Disease) 59
5.2.3. Classification by age of onset 59
5.2.4. Classification by brain location 59
5.2.5. Classification by genetic factors 60
5.3. Signs and Symptoms of Dementia 61
5.3.1. Mild dementia 61
5.3.2. Moderate dementia 62
5.3.3. Advanced dementia 62
5.4. Incidence of Dementia 62
5.5. Treatment of Dementia 63
5.5.1. Medical treatment 64
5.5.2. Psychological treatment 66
5.6. Prevention of Dementia 68
5.7. Social and Economic Impact of Dementia 69
5.8. Traumatic Injury and Dementia 70

Chapter 6. Methods 73
6.1. Database 73
6.2. Research Ethics 74
6.3. Study Sample 75
6.4. Data Analysis 79

Chapter 7. Results 81
7.1. Specific Goal #1 81
7.2. Specific Goal #2 85

Chapter 8. Discussion 88
8.1. Discussion about Traumatic Injury and Dementia Findings 88
8.2. Discussion about Traumatic Injury Types and Dementia Outcomes 95
8.3. Benefits of the Study 101
8.4. Limitations of the Study 102
8.5. Conclusions 103

References 105
List of Tables and Figures

Tables

Table 1. New Zealand Regions Classification 6
Table 2. Population Distribution by DHB and Age Group 9
Table 3. Life Expectancies at Birth from Gender by Broad New Zealand Region 10
Table 4. Major Causes of Death Ranked by Age-Standardised Mortality Rates 12
Table 5. Mortality Rates per Non-Communicable Disease in the Central Region 17
Table 6. Most Common Causes of Avoidable Mortality for All Ages in the Central Region 18
Table 7. AIS Score and Injury Classification Type 24
Table 8. Causes of Disability in the Adult Population of New Zealand 33
Table 9. Number of People with Disability by Ethnicity and Age in New Zealand 35
Table 10. Falls Risk Factors 39
Table 11. Strategic Recommendations to Reduce Falls Risk by the WHO 40
Table 12. Most Common Causes of Falls in Institutionalised Older People 53
Table 13. Falls Prevention Strategies in Institutions for the Elderly 54
Table 14. ICD-10 Codes for Dementia Cases 77
Table 15. ICD-10 Codes for Controls 78
Table 16. Comparison of Demographic Characteristics (Gender and Age Groups) Between Traumatic Injury and Non-Traumatic Injury Patients 82
Table 17. Comparison of Demographic Characteristics (Region of Residence) Between Traumatic Injury and Non-Traumatic Injury Patients 82
Table 18. Comparison of Comorbidities Between Traumatic Injury and Non-Traumatic Injury Patients with Dementia 82
Table 19. Ten-Year Dementia Risk Estimates for Cases and Controls with 95% CI HR 84
Table 20. Crude and Adjusted HR with a 95% CI for Dementia Among Sampled Patients of Different Age Groups Between 1 April 2003 and 1 April 2013 85
Table 21. Injury Types Among Trauma Patients With and Without Dementia 86
Table 22. Discharge Types (in Parentheses) and Codes (in Capitals) for Dementia and Controls 87

Figures

Figure 1. New Zealand Regions 5
Figure 2. Population Distribution in the CCDHB Area 8
Figure 3. Formulation of a Sample Case of Dementia for Psychological Therapy 67
Figure 4. Dementia-Free Rates for Cases (in Red) and Controls (in Blue) for the 10-Year Study Period 83
Figure 5. Response of a Nerve Fibre to Injury 93