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IMPROVING EARLY NUTRITIONAL
INTERVENTION IN HOSPITALISED
PATIENTS; LABORATORY TEST
(PREALBUMIN) VERSUS ROUTINE CLINICAL
ASSESSMENT

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ABSTRACT

Background

Malnutrition in hospitalised patients occurs in 30% of Australasian Hospitals. There are an estimated fifty malnutrition-screening tools currently available, although no single screening tool is universally accepted as gold standard in all settings. The Waitemata District Health Board (WDHB) hospitals: North Shore hospital (NSH) and Waitakere hospital utilise the Malnutrition Universal Screening Tool (MUST). A hospital dietitian audit performed in 2009 at NSH identified as few as 8% of patients were screened using MUST. Universal screening on hospital admission incorporating prealbumin has been proposed as a more effective method for early identification of patients at risk of disease-related malnutrition.

Aims

To evaluate whether universal prealbumin screening increases the number of patients identified and referred to a dietitian for comprehensive disease-related malnutrition assessment.

Method

A two-phase observational cohort study was conducted utilising consecutively admitted patients to: two acute surgical, one acute orthopaedic and two acute medical wards from February to April 2013. Phase I: Observational stage recorded dietetic inpatient referral data for patients screened by MUST triggering a dietetic referral. Phase II: Research protocol, patients were selected using electronic notes programme Concerto™. Patients that met the research inclusion criteria had admission blood samples tested for prealbumin and C-reactive protein (CRP) within 36 hours post admission. The researcher examined whether abnormal prealbumin level <0.2 g/L triggered a prompt referral to a dietetic assessment. Dietetic inpatient referral data set was repeated for phase II as in phase I.

Results

Phase I, 970 patients were admitted during a 25-day control period. Patient referral pathway was either through MUST or clinical professional referral with 28% of patients having a completed MUST in their clinical notes, a total of 7.8% (76/970) of patients were referred.

Phase II, 776 patients were admitted during a 22-day period, 564 patients met inclusion criteria and were selected for screening. Test results indicated 27% (155/564) had abnormal prealbumin results ranged from 0.03 g/L to 0.54 g/L; these patients deemed at risk of malnutrition. A total of 43 patients were referred to a dietitian through either MUST or clinical professional referral. 30% of those 43 patients assessed by a dietitian had abnormal prealbumin results, although 70% of those did not initiate a dietetic referral. Of 43 patients referred 51% had a completed MUST screen recorded; however nil patients referrals were triggered by abnormal prealbumin results.

Conclusion

In our study prealbumin results were found to be a sensitive marker of malnutrition risk with 27% of screened patients deemed at risk of malnutrition. This is in-line with international prevalence rates of hospital malnutrition set between 20-60%. However, despite our findings it was identified that the clinicians poorly recognise hospital malnutrition, as patients were not referred based on abnormal pre-albumin levels.

Key words

Prealbumin, Hospital Malnutrition, MUST, malnutrition screening, visceral proteins, protein energy malnutrition, disease-related malnutrition.

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Table of Contents

ABSTRACT	I
ACKNOWLEDGEMENTS	III
LIST OF TABLES	VIII
LIST OF FIGURES	IX
LIST OF ILLUSTRATIONS	X
LIST OF ABBREVIATIONS	XI
STRUCTURE OF THESIS	1
MALNUTRITION RISK IN HOSPITALISED PATIENTS	3
1. 0. INTRODUCTION	3
<i>The International economics of disease-related malnutrition.</i>	6
<i>Comparing malnutrition screening tools</i>	10
<i>Laboratory Markers of Malnutrition Risk</i>	11
<i>Interdisciplinary teams</i>	14
<i>Summary</i>	15
1.1. AIM.....	17
1.2. PRIMARY OBJECTIVES.....	17
1.3. HYPOTHESIS	17
1.4. TABLE OF CONTRIBUTIONS	18
2.0. LITERATURE REVIEW	20
2.1. AETIOLOGY OF MALNUTRITION	20
2.2. MALNUTRITION DIAGNOSIS.....	22
2.3. AETIOLOGY OF DISEASE-RELATED MALNUTRITION	26
2.4. SCOPE OF THE DISEASE-RELATED MALNUTRITION PROBLEM.....	31
2.5. PREVALENCE OF HOSPITAL MALNUTRITION	33
2.6. INCREASING GERIATRIC POPULATION.....	36

2.7. MALNUTRITION ASSESSMENT	39
2.8. MALNUTRITION ASSESSMENT TOOLS	41
2.8.1. <i>Limitations of malnutrition screening in the hospital setting.</i>	43
2.9. MALNUTRITION UNIVERSAL SCREENING TOOL (MUST)	44
2.9.1. <i>MUST limitations</i>	46
2.10. LABORATORY MARKERS OF MALNUTRITON RISK.....	47
2.11. PREALBUMIN (TRANSTHYRETIN).....	50
2.11.1. <i>Limitations of Prealbumin</i>	52
2.12. ALBUMIN.....	53
2.12.1. <i>Albumin Limitations</i>	55
2.13. RETINOL BINDING PROTEIN	56
2.13.1. <i>Retinol Binding Protein Limitations</i>	56
2.14. TRANSFERRIN	56
2.14.1. <i>Limitations of Transferrin</i>	57
2.14.2. <i>Summary of Laboratory markers of malnutrition risk</i>	57
2.15. C-REACTIVE PROTEIN	57
2.15.1. <i>Limitations of CRP</i>	59
2.16. RESEARCH STUDIES: NUTRITIONAL SCREENING: ANTHROPOMETRIC VS. BIOCHEMICAL MARKERS.....	60
2.17. BENEFITS OF NUTRITION ASSESSMENT & INTERVENTION.....	64
2.18. SUMMARY	65
3.0 METHOLOGY	68
3.1. RESEARCH DESIGN INTRODUCTION.....	68
3.2. ROUTINE CLINICAL ASSESSMENT	68
3.3. PARTICIPANTS	70
3.3.1. <i>Inclusion Criteria</i>	71
3.3.2. <i>Exclusion Criteria</i>	71
3.4. ETHICAL APPROVAL AND CONSENT	71

3.5. FUNDING	74
3.6. METHODS AND MATERIALS	74
3.7. STUDY DESIGN	77
3.8. RESEARCH STUDY METHODOLOGY	79
3.9. RESEARCH PROCESS PHASE I: (CONTROL PHASE)	80
3.10. RESEARCH PROCESS PHASE II: (PREALBUMIN TESTING)	81
3.11. STATISTICAL ANALYSIS	82
4.0. RESULTS	83
4.1. INTRODUCTION	83
4.2. DEMOGRAPHIC ANALYSIS	83
4.3. MUST PROTOCOL RESULTS	88
4.4. PRIMARY ENDPOINT- MORE PATIENTS IDENTIFIED AT RISK OF MALNUTRITION; PREALBUMIN RESULTS	91
4.5. PREALBUMIN/CRP CORRELATION	95
4.6. SECONDARY ENDPOINT-REFERRAL TO A DIETITIAN	97
4.7. SUMMARY	98
5.0. DISCUSSION	100
5.1. INTRODUCTION	100
5.2. PARTICIPANT DEMOGRAPHICS	100
5.3. PREALBUMIN SCREENING	100
5.4. PREALBUMIN CORRELATION WITH CRP	107
5.5. DISEASE-RELATED MALNUTRITION SCREENING & ASSESSMENT..	109
5.6. COSTS AND LENGTH OF STAY	111
5.7. SUMMARY	112
6.0. CONCLUSION	113
6.1. STRENGTHS AND LIMITATIONS OF THIS RESEARCH	113
6.1.1. <i>Strengths</i>	113
6.1.2. <i>Limitations</i>	114

6.2. RECOMMENDATIONS FOR FUTURE RESEARCH.....	115
6.3. CONCLUSION.....	116
6.4. RECOMMENDATION.....	119
7.0. REFERENCES.....	120
8.0 APPENDICES	129
APPENDIX A: EVIDENCE BASED GUIDELINE FOR NUTRITION SCREENING	129
APPENDIX B: MUST APP	130
APPENDIX C: MASSEY UNIVERSITY PEER REVIEW LETTER.....	131
APPENDIX D: HDEC APPROVAL LETTER 2013.....	132
APPENDIX E: NZSG SMALL RESEARCH GRANT 2013 LETTER	133
APPENDIX F: DIETETIC INPATIENT REFERRAL DATA COLLECTION FORM).....	134
APPENDIX G: WDHB DIETITIAN REFERRAL FORM	135

LIST OF TABLES

Table Number	Table Title	Page
Table 1.1.	Table of Contributions.	18-19
Table 2.1.	Malnutrition Definitions.	23
Table 2.2.	Hospital malnutrition prevalence by country in studies post 1990.	34
Table 2.3.	Visceral Markers of Malnutrition Risk.	48
Table 2.4.	Visceral Protein: Positive acute phase protein CRP.	59
Table 3.1.	MUST Measurement Criteria.	69
Table 3.2.	Table of Statistical Analysis Variables.	82
Table 4.1.	Primary and Secondary Endpoint Referral Demographics.	85
Table 4.2.	MUST Results/Ward: Phase I.	88
Table 4.3.	MUST Results/Ward: Phase II.	88
Table 4.4.	MUST/Referral/ Prealbumin <0.2 g/L per 5 Study Wards.	89
Table 4.5.	Prealbumin characteristics Phase: 2	92
Table 4.6.	Analysis of CRP stratification vs. prealbumin levels.	95
Table 5.1.	Prealbumin Risk Stratification.	105

LIST OF FIGURES

Number	Figure title	Page
Figure 1.1.	Government projection spending on healthcare.	6
Figure 2.1.	Vicious cycle in the progression of Disease-related malnutrition adapted from Norman (2008).	27
Figure 2.2.	Population age pyramid projections from 2009-2031.	37
Figure 2.3.	MUST.	45
Figure 2.4.	Results from Robinson et al (2003) showing the nutritional screen and assessment using standard and prealbumin protocols.	61
Figure 2.5.	Quality improvement model describing the clinical pathway.	62
Figure 3.1.	Angela Pountney (Service Lead Biochemistry, WDHB) and the Dimension Vista® analyser.	75
Figure 3.2.	Concerto™ electronic clinical documentation portal for patient information.	76
Figure 3.3.	Study Design.	78
Figure 4.1.	Study phase I: Participant selection pathways.	86
Figure 4.2.	Study phase II: Participant selection pathway.	87
Figure 4.3.	Phase II: Male vs. Female Abnormal Prealbumin Results.	90
Figure 4.4.	MUST screen/referral compared to total number of referrals per speciality ward: Phase II.	91
Figure 4.5.	Results of Phase II by Speciality Ward.	93
Figure 4.6.	CRP stratification vs. prealbumin.	96
Figure 4.7.	Secondary Endpoint-Referral to a Dietitian.	98

LIST OF ILLUSTRATIONS

Number	Illustration Title	Page
Illustration 2.1.	Prealbumin Protein Structure.	50

LIST OF ABBREVIATIONS

CRP	C-Reactive Protein
RBP	Retinol Binding Protein
NZ	New Zealand
PEM	Protein Energy Malnutrition
RD	Registered Dietitian
BMI	Body Mass Index
LBM	Lean Body Mass
ESPEN	European Society for Parental and Enteral Nutrition
WDHB	Waitemata District Health Board
NSH	North Shore Hospital
NHS	National Health Service
DM	Diabetes Mellitus
ICU	Intensive care unit
~	Approximately
DNZ	Dietitians New Zealand
NICE	National Institute for Health and Care Excellence
REE	Resting Energy Expenditure
ANCDS	The Australasian Nutrition Care Day Survey
BAPEN	British Association for Parental and Enteral Nutrition
MUST	Malnutrition Universal Screening Tool
NICE	National Institute for Health and Care Excellence
REE	Resting Energy Expenditure
ANCDS	The Australasian Nutrition Care Day Survey
NHI	National Health Index
USA	United States of America
SD	Standard Deviation