Descriptive Characteristics and Oral Nutrition Supplement (ONS) Prescription Patterns of Kidney Care Patients in BC

Dani Renouf, RD, MSc, CDE [1] , Adeera Levin, MD, FRCPC [2] , Michelle M.Y.Wong, MD, MSc, FRCPC [3] , Sophia Zheng [4]

1. St. Paul's Hospital, Providence Health Care, Vancouver, Canada; 2. Head, Division of Nephrology, UBC, Vancouver, Canada; 3. Department of Medicine, UBC, Vancouver, Canada; 4. BC Renal Agency, Vancouver, Canada

INTRODUCTION

ONS is indicated for CKD patients with malnutrition, the burden of which is unknown in Canada. We sought to define the prevalence of ONS use in BC and explore prescription patterns over time.

METHODS

- Retrospective study of non-dialysis CKD patients (Jan 2013-Dec 2018)
- ONS users = identified those with >1 ONS prescription(s) per year
- Characteristics of ONS and non-ONS users were compared using Wilcoxon signed-rank test
- ONS prescription patterns and the proportion of patients on ONS were stratified by health region
- ONS use over time was followed patients who entered KCC between 2013-2015 longitudinally over a 3-year period

RESULTS

- A total of 15859 patients were included
- Prevalence of ONS use was 8.8%, with variations between health regions observed (range 2.7-10.5%).
- As shown in Table 1, ONS users were :
  - older
  - had higher inflammatory markers
  - lower eGFR, serum albumin, hemoglobin, bicarbonate, and BMI Prevalence of diabetes and hypertension were similar
- In Figure 1, the longitudinal analysis (N=7611) showed 8.3% of patients were prescribed ONS (N=632)
- Between year 1 and year 3, patients were lost due to follow up, dialysis, mortality, discharge from clinic, or other reasons.
- A higher % of 1-2 ONS prescriptions/year was observed in year 1 (65.4%), compared to year 2 (35%) and year 3 (30.7%)
- %of >3 ONS prescriptions were consistent between year 1 and 3, indicating a subgroup who rely on ONS regularly.

Table 1: Baseline characteristics within 6 months of KCC entry, by ONS use

	ONS N=1389	No ONS N=14470	P-value
Age (years)	75.4 [64.6, 82.8]	71 [60.8, 79.2]	<0.0001
Female (%)	46%	44%	
Comorbidities			
Diabetes (%)	50%	52%	
Hypertension (%)	77%	74%	
eGFR (ml/min/1.73m²)	24 [17, 32]	30 [23, 40]	<0.0001
<15 (%)	17%	7%	
15-29.9 (%)	52%	41%	
30-44.9 (%)	24%	33%	
45-59.9 (%)	5%	10%	
≥ 60 (%)	2%	9%	
Urine ACR (mg/mmol)	32.2 [5.1, 182.1]	16.4 [2.9, 102.4]	<0.0001
< 3 (%)	17%	25%	
≥ 3 (%)	83%	75%	
Body Mass Index (kg/m²)	24.6 [21.8, 28.0]	28.1 [24.5, 32.3]	<0.0001
< 18.5 (%)	6%	2%	
18.5 - 24.9 (%)	50%	27%	
25 - 29.9 (%)	28%	24%	
≥ 30 (%)	16%	37%	
Serum albumin (g/L)	38 [34, 41]	40 [37, 43]	<0.0001
< 38 (%)	45%	28%	
≥ 38 (%)	55%	72%	
Serum total cholesterol (mmol/L)	4.1 [3.4, 5.2]	4.3 [3.5, 5.2]	0.10
< 2.59 (%)	7%	4%	
≥ 2.59 (%)	93%	96%	
Serum phosphate (mmol/L)	1.3 [1.1, 1.5]	1.2 [1.1, 1.4]	<0.0001
Phos < 0.75 (%)	1%	1%	
Phos ≥ 0.75 (%)	99%	99%	
Serum bicarbonate (mmol/L)	24 [22, 27]	25 [23, 27]	<0.0001
< 22 (%)	23%	15%	
≥ 22 (%)	77%	85%	
Serum ferritin (µg/L)	141 [69, 315]	113 [56, 223]	<0.0001
< 100 (%)	36%	45%	
100 – 500 (%)	48%	48%	
≥ 500 (%)	14%	7%	
Iron saturation	0.23 [0.16, 0.31]	0.23 [0.17, 0.31]	0.14
< 0.22 (%)	45%	43%	
≥ 0.22 (%)	55%	57%	
Serum creatinine (µmol/L)	204 [158, 275]	170 [131, 222]	<0.0001
Hemoglobin (g/L)	107 [95, 120]	118 [104, 132]	<0.0001
< 100 (%)	36%	18%	
≥ 100 (%)	64%	82%	
PTH (pmol/L)	11.3 [6.8, 18.4]	9.2 [5.7, 15]	<0.0001
< 18 (%)	74%	82%	
≥ 18 (%)	26%	18%	
Neutrophil-to-lymphocyte ratio	3.3 [2.2, 5.1]	2.8 [2.0, 4.2]	<0.0001
< 4 (%)	60%	72%	
≥ 4 (%)	39%	28%	

Values are represented as median (IQR) or prevalence (%) among patients with non-missing values.

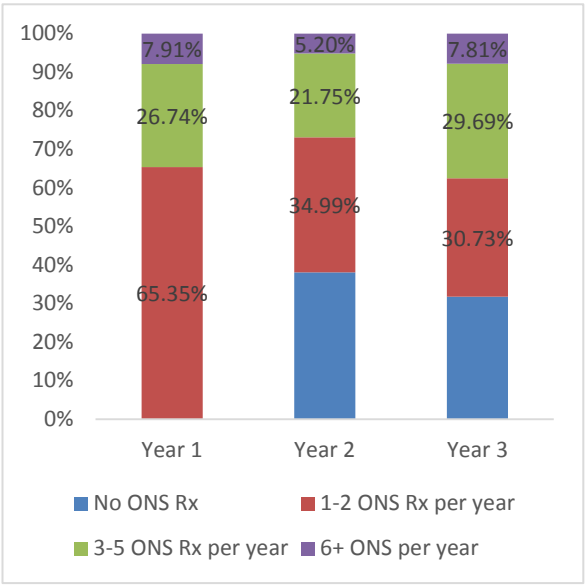

Figure 1. Longitudinal Follow Up of Patients Prescribed ONS in Year 1

CONCLUSION

- The first Canadian study to describe the prevalence and determinants of ONS use
- Our data suggest that ONS use is indicated when prescribed
- Although government-funded, ONS use remains <10% with considerable regional variability

Further studies are needed to better understand these factors to improve standardization of care and cost efficiency.

ACKNOWLEDGEMENTS
Zainab Sherrif, Research Coordinator, BC Renal
Mark Canney, MD, FRCPC, UBC Faculty of Medicine
Michael Smith Foundation for Health Research (Funding for Dr. MYM Wong)