



CHAPTER 10

CANCER

Germaine Wong

Blair Grace

Philip Clayton

Jonathon C. Craig

2013 Annual Report - 36th Edition





INTRODUCTION

There is now consistent evidence showing an increased risk of cancer by at least 1.5 and 2-fold for people on dialysis and with kidney transplants, respectively. Cancer is also second to cardiovascular disease as the major cause of mortality and morbidity in these patients. Cancer can occur de novo or recur after transplantation. Patients with a prior cancer are also at risk of developing a new cancer type after transplantation. In this report, we provide the overall and site-specific cancer risks for those on dialysis and with a functioning kidney allograft between 1965 – 2012. We will also present the incidence of disease recurrence and new cancer development among those with a prior cancer. Finally, several new and novel risk factors for cancer after transplantation have been established using data from the ANZDATA Registry. Understanding the potential modifiable risk factors of cancer may enable clinicians, health professionals and decision makers to develop strategies that may prevent and/or halt disease occurrence and progression in the future.

CUMULATIVE INCIDENCE OF ALL CANCERS

Figure 10.1 Cumulative incidence of all cancers (excluding non-melanocytic skin cancers) in Australia and New Zealand

The cumulative incidence of cancers is similar between Australia and New Zealand. Over 9% of patients on renal replacement therapy (RRT) develop a cancer (excluding non-melanocytic) within 10 years of commencing RRT.

Figure 10.1

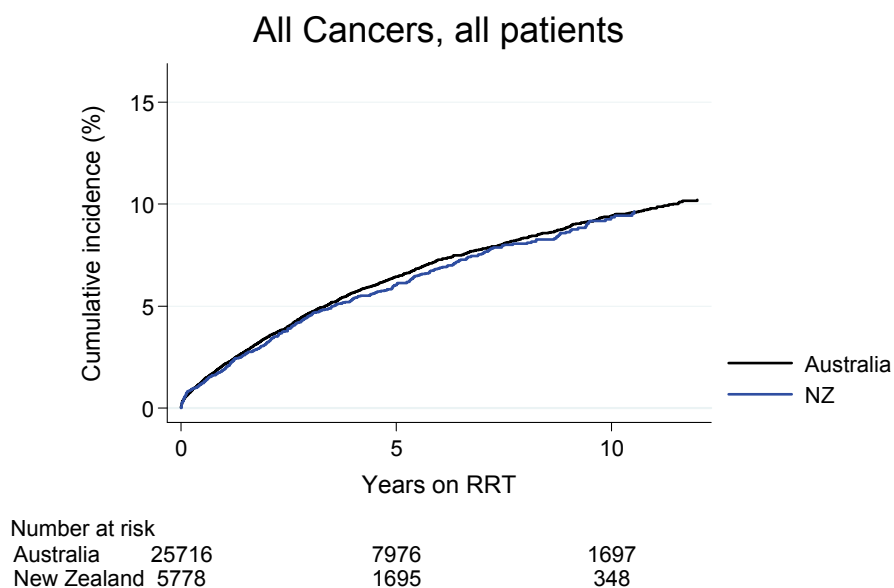


Figure 10.2

Cumulative (%) Incidence of all Cancers in Australia and New Zealand (excluding non-melanocytic skin cancers)					
Country	6 months	1 years	2 years	5 years	10 years
Australia	1.3 (1.2, 1.5)	2.1 (2.0, 2.3)	3.5 (3.3, 3.7)	6.4 (6.1, 6.8)	9.4 (8.9, 9.9)
New Zealand	1.2 (1.0, 1.6)	1.9 (1.6, 2.3)	3.2 (2.8, 3.7)	6.0 (5.4, 6.7)	9.4 (8.4, 10.4)

CUMULATIVE INCIDENCE OF ALL CANCERS AMONG THOSE WITH FUNCTIONING KIDNEY TRANSPLANTS

Figures 10.3a and 10.3b Cumulative incidence of all cancers (excluding non-melanocytic skin cancer) among those with a functioning kidney transplant, stratified by age at transplant.

Figure 10.3a

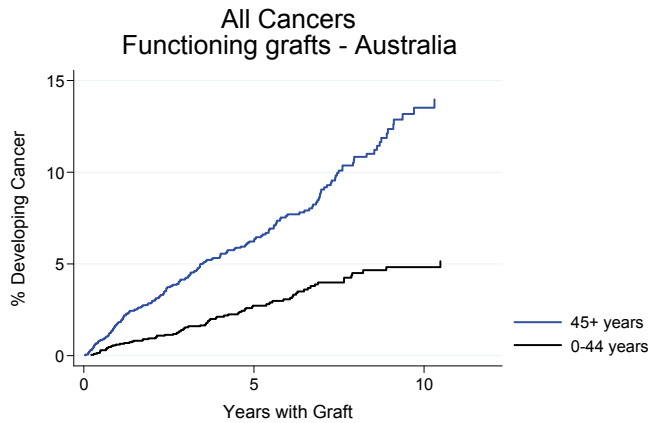


Figure 10.3b

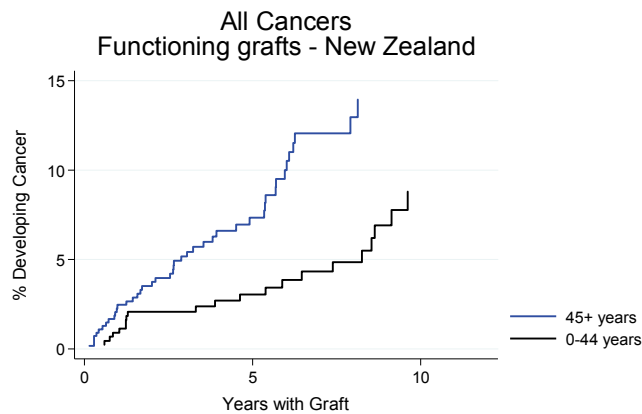


Figure 10.4a and 10.4b Cumulative incidence of all cancers (excluding non-melanocytic skin cancer) among those with a functioning kidney transplant, stratified by age at transplant.

Figure 10.4a

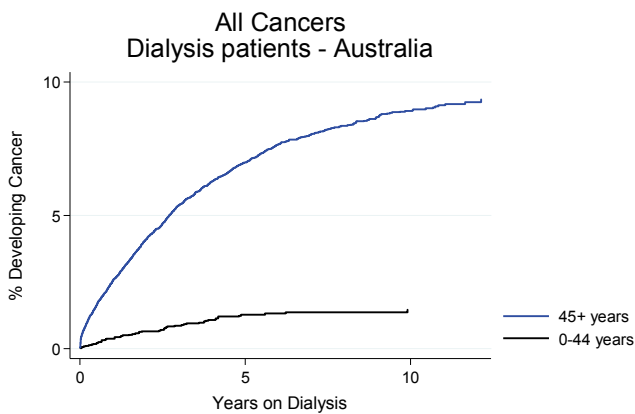
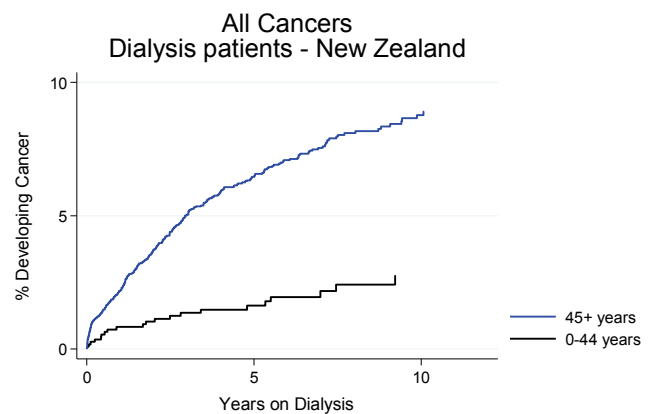


Figure 10.4b





CUMULATIVE INCIDENCE OF THE THREE MOST PREVALENT CANCER TYPES AMONG THOSE ON RRT IN AUSTRALIA AND NEW ZEALAND

Figures 10.5 - 10.7 Cumulative incidence of the three most common cancer types among those on RRT in Australia and New Zealand. Cancer of the lung is the most common cancer type, followed by colorectal and urinary tract cancers.

Figure 10.5

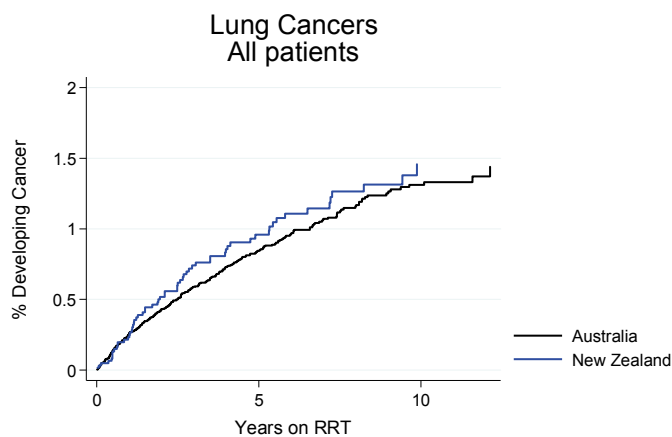


Figure 10.6

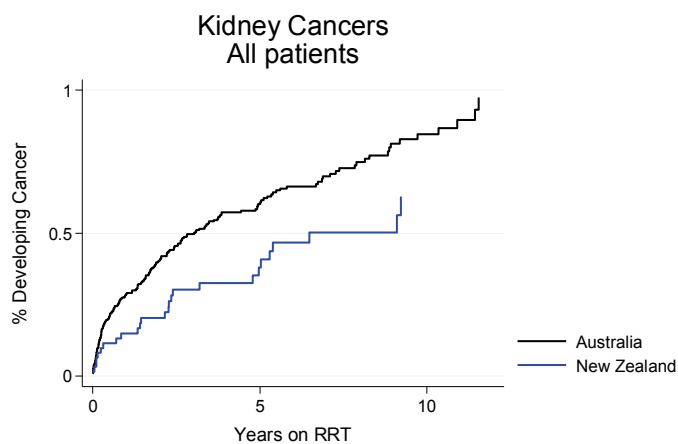
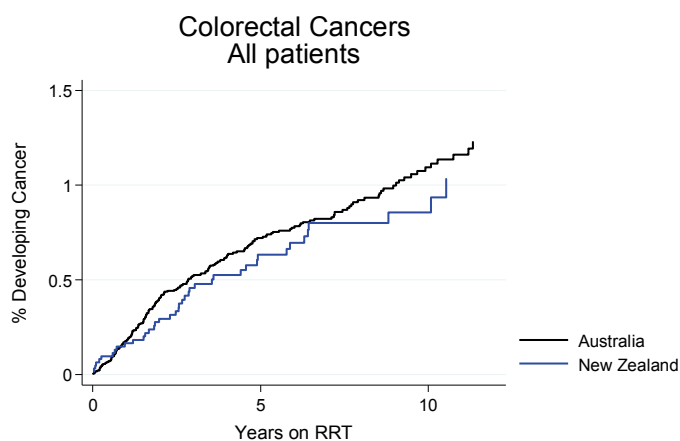


Figure 10.7



FREQUENCY OF SITE-SPECIFIC CANCERS

Figure 10.8 Of the 21,415 transplanted patients, 651 (3.0%) had cancer prior to transplantation. A total of 23 patients experienced cancer recurrence during the follow-up. Fifty seven (out of 651, 8.7%) developed a new second cancer after transplantation. Among those with disease recurrence, cancers of the urinary tract system were most prevalent, followed by breast, lung cancers and melanomas.

Figure 10.8

Frequency of Site-Specific Cancers			
	Recipients who developed incident cancer following first transplant	Recipients with prior cancer and developed a new cancer following first transplant	Recipients with prior cancer and developed cancer recurrence following first transplant
All cancers (n, %)	2760 (100)	57 (100)	23 (100)
Colorectal	509 (18.4)	11 (19.3)	1 (4.4)
Urinary tract	370 (13.4)	8 (14.0)	7 (30.4)
Female genitourinary	288 (10.8)	1 (1.8)	3 (13.0)
Melanoma	295 (10.7)	8 (14.0)	3 (13.0)
Lung	218 (7.9)	8 (14.0)	-
Haematological	217 (7.9)	4 (7.0)	2 (8.7)
Prostate	167 (6.1)	5 (8.8)	-
Breast	150 (5.8)	6 (10.5)	6 (26.1)
Oral	126 (4.6)	3 (5.3)	1 (4.4)
Central nervous system (CNS)	93 (3.4)	2 (3.5)	-
Thyroid/endocrine	67 (2.4)	-	-
Connective tissue	30 (1.1)	1 (1.8)	-
Others	54 (2.0)	-	-
Cancers with unknown site	165 (6.0)	-	-

Novel Risk Factors for Cancer Development After Kidney Transplantation

Figure 10.9	
Novel Risk Factors for Cancer Development After Kidney Transplantation	
<p><i>Acute rejection and cancer risk</i> <i>Lim WH et al Transplantation 2014</i></p>	<p>Recipients who experienced acute rejection and treated with T-cell-depleting antibody were 40% more likely to develop incident cancer compared with those who did not experience acute rejection, particularly genitourinary tract cancers</p>
<p><i>Time on dialysis and cancer risk</i> <i>Wong G et al Transplantation 2013</i></p>	<p>There is a linear relationship between duration of dialysis and the risk of cancer after transplantation, with over 2.5-fold increase in the risk of lung and urinary tract cancers among recipients who had been on dialysis for the longest duration before transplantation</p>
<p><i>Immunosuppression pre-transplant and cancer risk</i> <i>Hibberd A et al Transplantation 2013</i></p>	<p>Use of pre-transplantation immunosuppression in the treatment of primary kidney disease is associated with 1.8 -3.7-fold greater risk of anogenital cancers, non-Hodgkin's lymphomas, breast cancers and urinary tract cancers</p>
<p><i>Donor type and cancer risk</i> <i>Lim WH et al TSANZ abstract 2013</i></p>	<p>Compared to recipients of live-donor kidneys, recipients of expanded criteria deceased donor kidneys were at a 1.5-fold greater risk of developing incident cancers, particularly genitourinary cancers and post-transplant lymphoproliferative disease</p>
<p><i>Donor cancer transmission in kidney transplantation</i> <i>Systematic review of donor cancer transmission</i> <i>Xiao D et al Am J Transplant 2013</i></p>	<p>A total of 69 studies with 104 donor-transmitted cancer cases were identified, with the three most common transmitted cancer types being renal cell cancers (n = 20, 19%), melanoma (n = 18, 17%), lymphoma (n = 15, 14%) and lung cancers (n = 9, 9%). Recipients with donor-transmitted melanoma and lung cancers incurred the poorest overall survival and therefore donors with a history of melanoma or lung cancer should not be considered.</p>



This page is intentionally blank