Outcomes of liver transplantation for NASH at NZLTU over last 20 years

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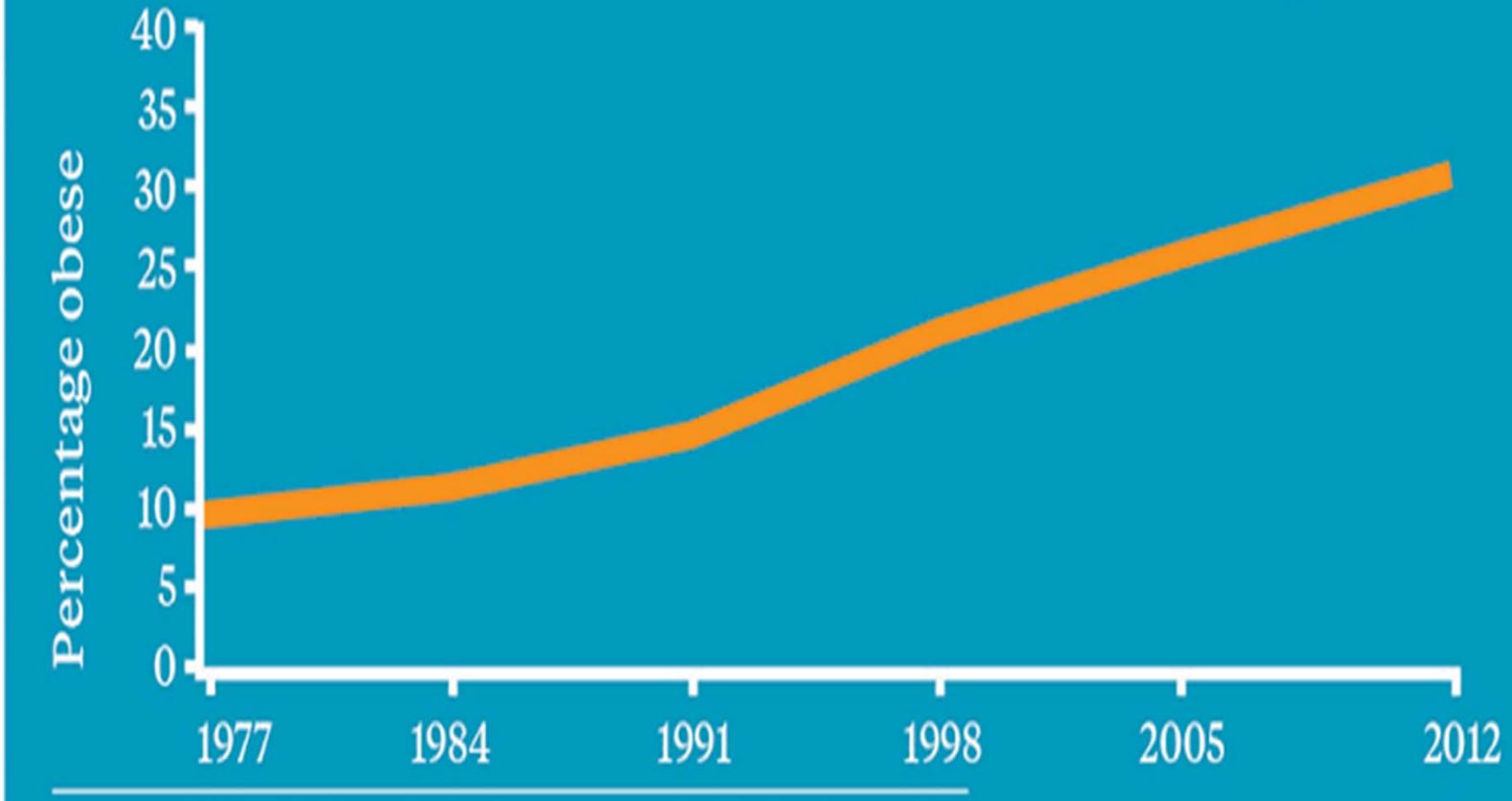
NASH/TRANSPLANTATION

- NASH is the most rapidly growing indication for liver transplantation globally

- NASH is anticipated to become the leading cause of liver transplant in NZ within the next 1-2 decades

New Zealand has the third highest adult obesity rate in the OECD and our rates are rising



Ministry of Health. 2015. *Understanding Excess Body Weight: New Zealand Health Survey*. Wellington: Ministry of Health.

AIM OF THE STUDY

To determine the outcomes following liver transplantation for NASH in New Zealand.

METHOD

- NASH cases underwent liver transplantation at NZLTU between 1999 and 2019 were included
- Data on demographics, metabolic risk factors and survival were collected

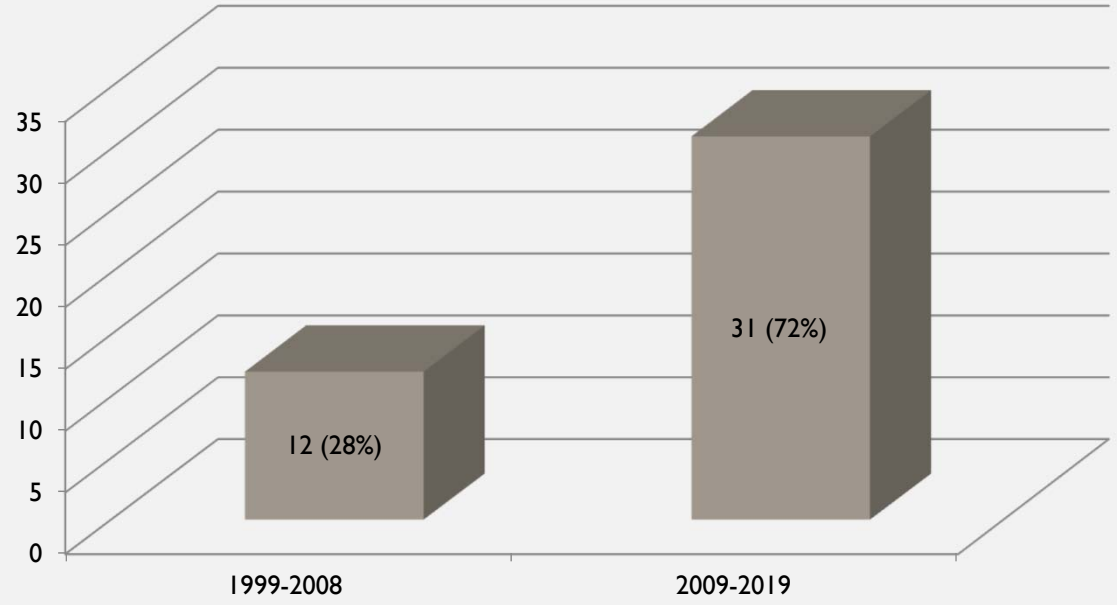
RESULT

- 43 patients underwent liver transplantation for NASH

  > Two third (N=29) for decompensated liver cirrhosis (DLC)

  > One third (N=14) for HCC

NUMBERS PER DECADE



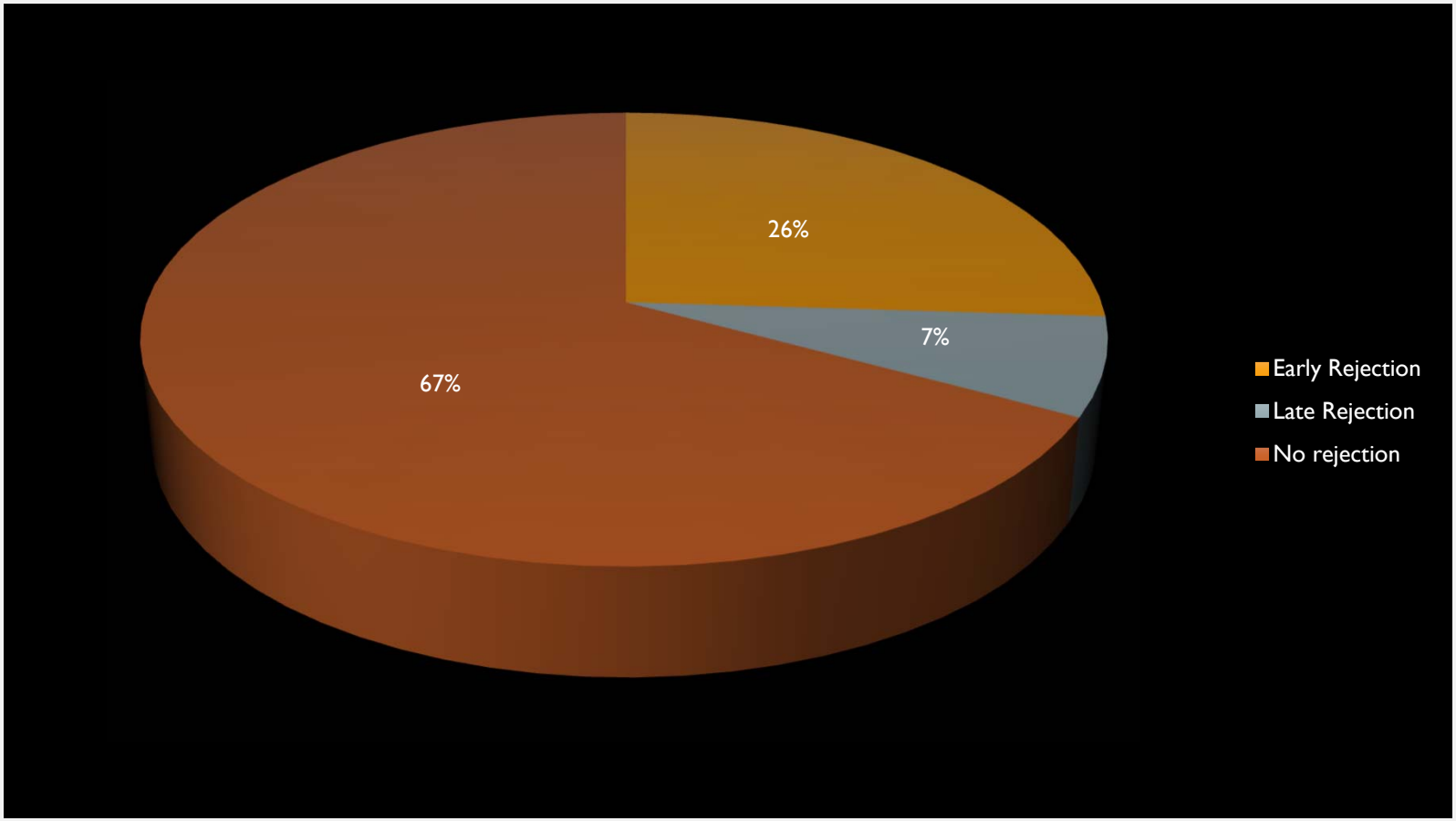
ALL PATIENTS

Total number	43
Decompensated NASH	67%(29)
NASH-HCC	33%(14)
European	84%
Male	70%
Median age	58 (46-71)
Obesity (BMI>30)	88%
Median Pre-transplant BMI	35 (24-47)
DM	60%
HTN	49%
Dyslipidaemia	14%
Median biological MELD	12.5 (6-47)
Median waiting time (Range)	99 days (5-434)

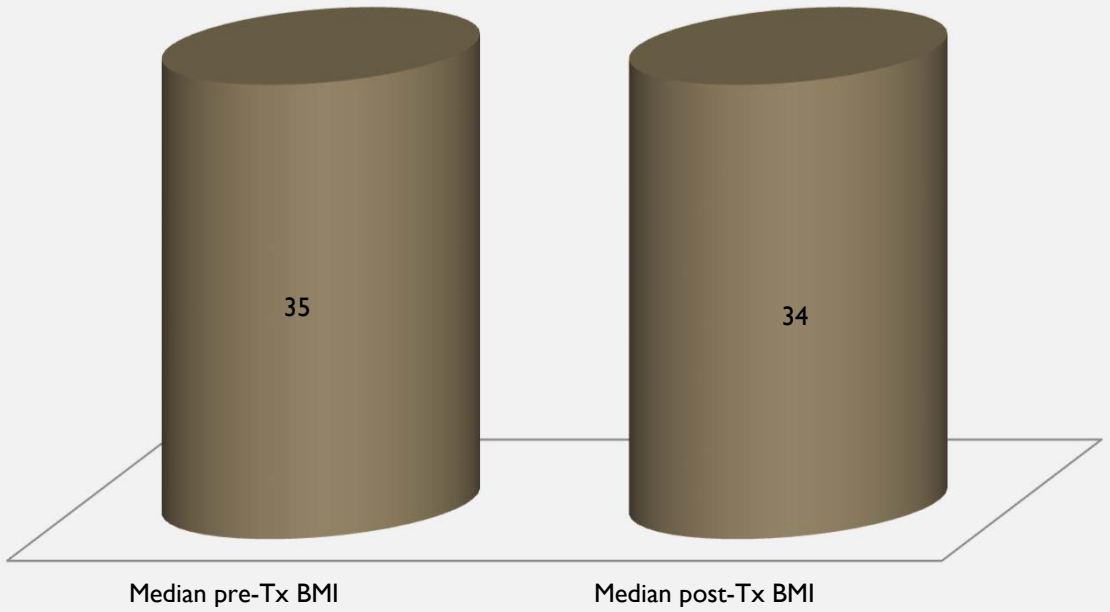
DLC VS HCC

	NASH-DLC	NASH-HCC
Percentage(N)	67%(29)	33%(14)
European	79%	93%
Male	66%	79%
Median Age	57 Years	61 years
Obesity	93%	100%
DM	55%	57%
HTN	38%	64%
Dyslipidaemia	4%	36%
Median biological MELD	16.5	8.5
Median waiting time	89 days (5-434)	103 days (33-370)

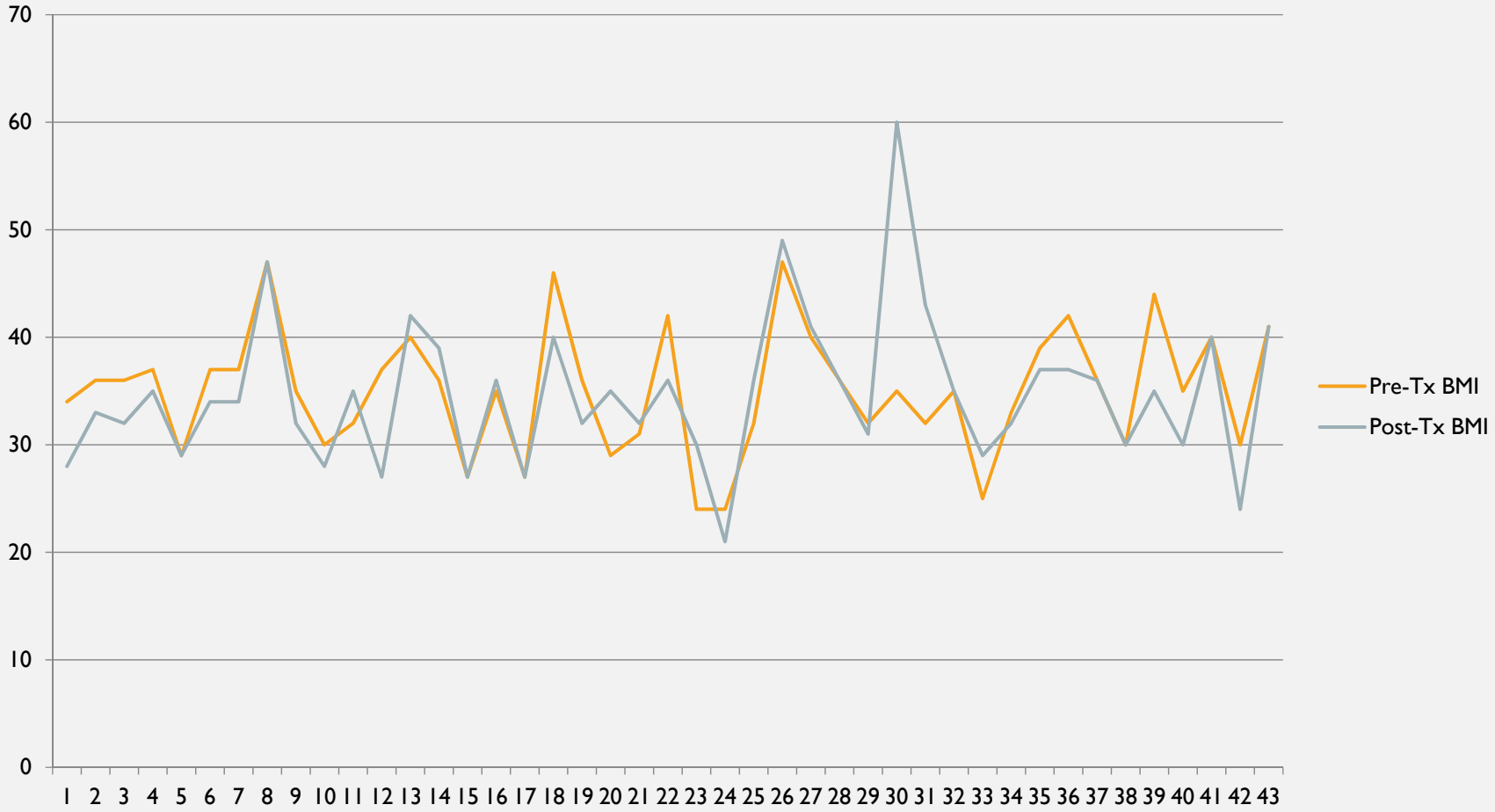
REJECTION POST-TRANSPLANTATION



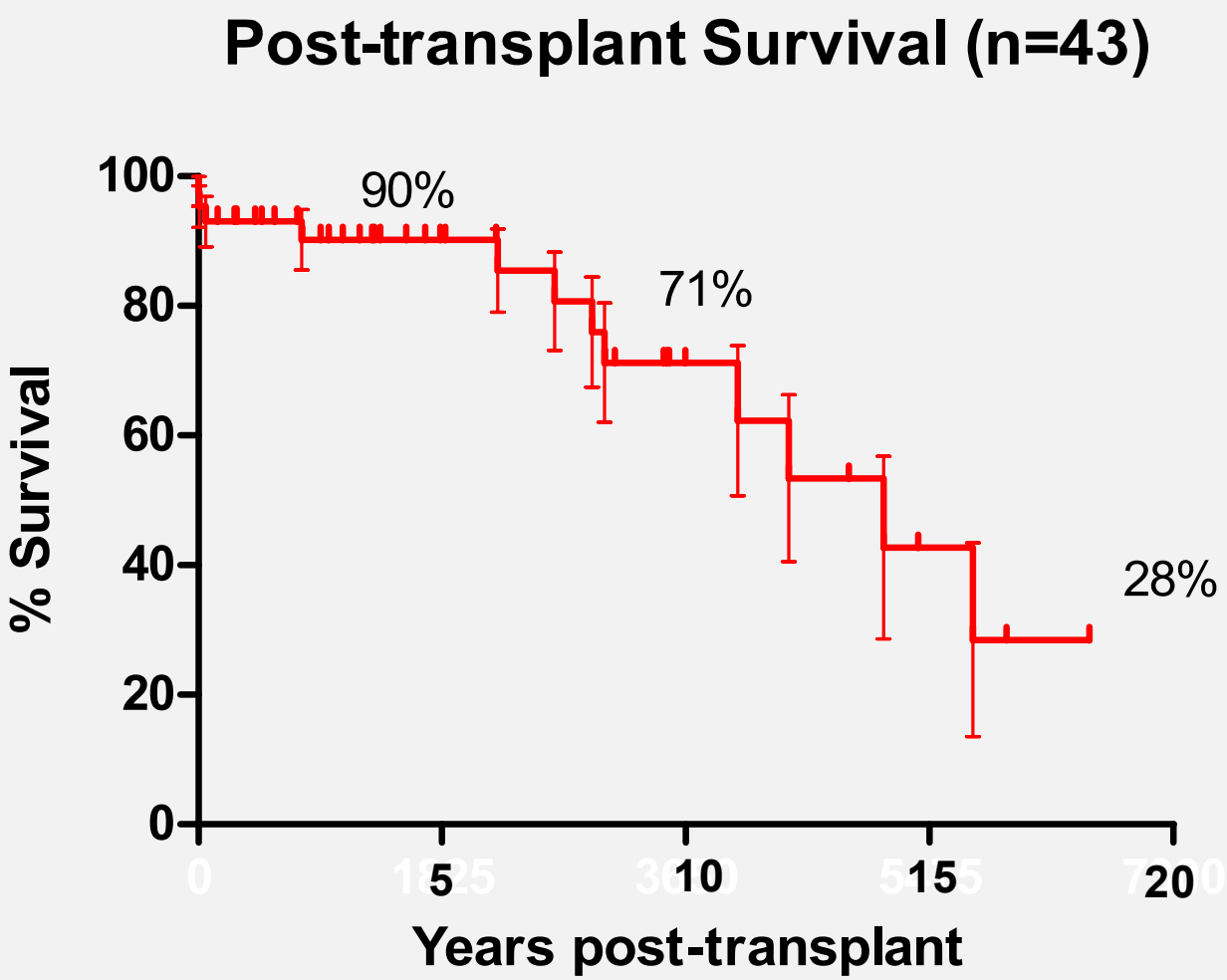
OBESITY: PRE/POST-TRANSPLANT



OBESITY: PRE/POST-TRANSPLANT



POST-TRANSPLANT SURVIVAL FOR NASH DLC+HCC



EARLY POST TRANSPLANT MORTALITY

- Three patients within 6 weeks:

1) Primary non-functioning graft

2) E-coli septicaemia with multiorgan failure

3) Portal vein thrombosis
   -Started on coagulation
   -Died of Intracranial haemorrhage
   -Autopsy AV malformation.

LATE POST TRANSPLANT MORTALITY

- **Related to complications of metabolic syndrome :**

  -Three >>> ESKD

  -One >>> Recurrent decompensated NASH cirrhosis

  -One >>> De novo solid organ tumour(CRC)

- **Other causes of late deaths**

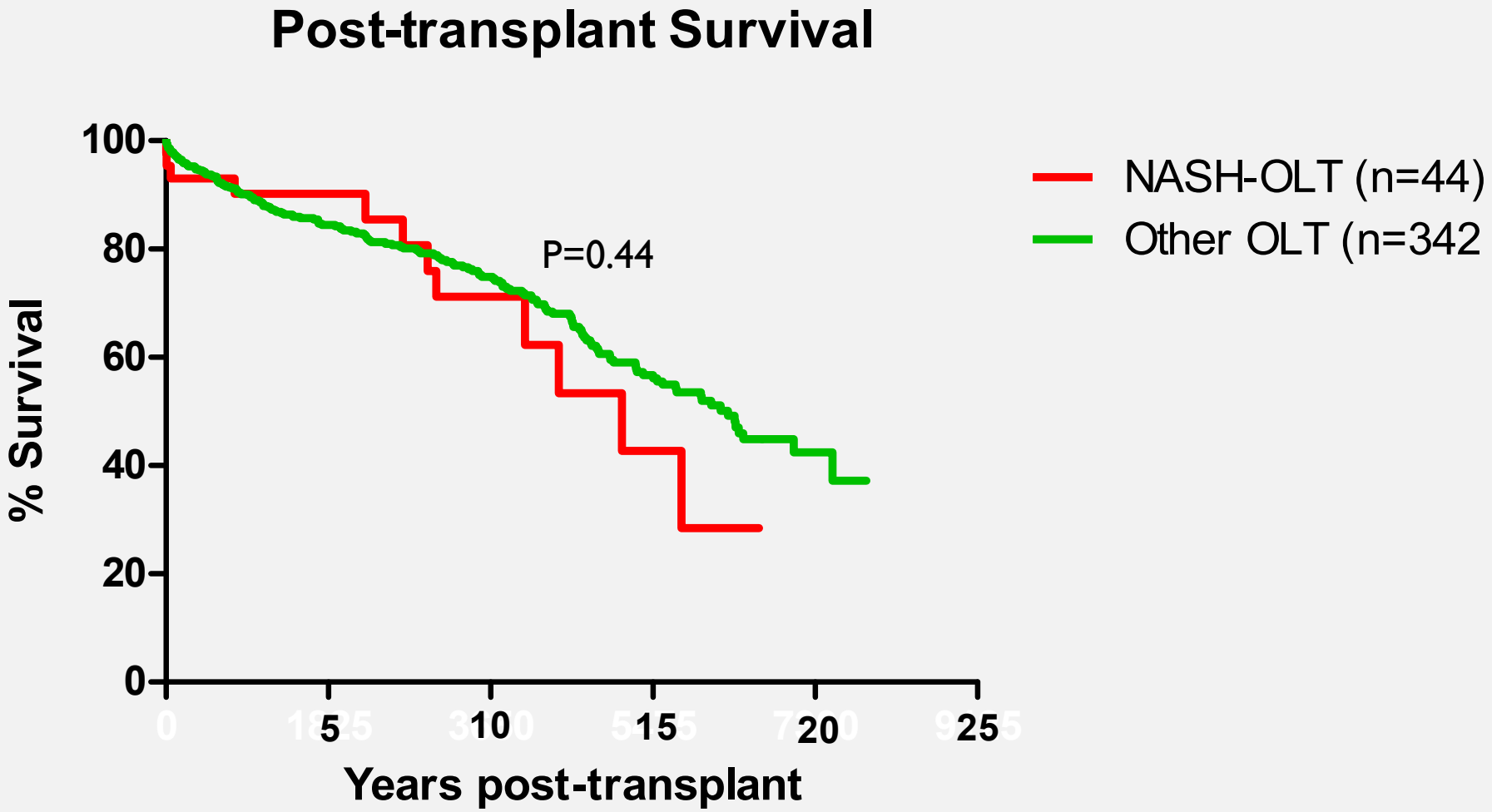
  -Severe norovirus infection

  -Respiratory arrest

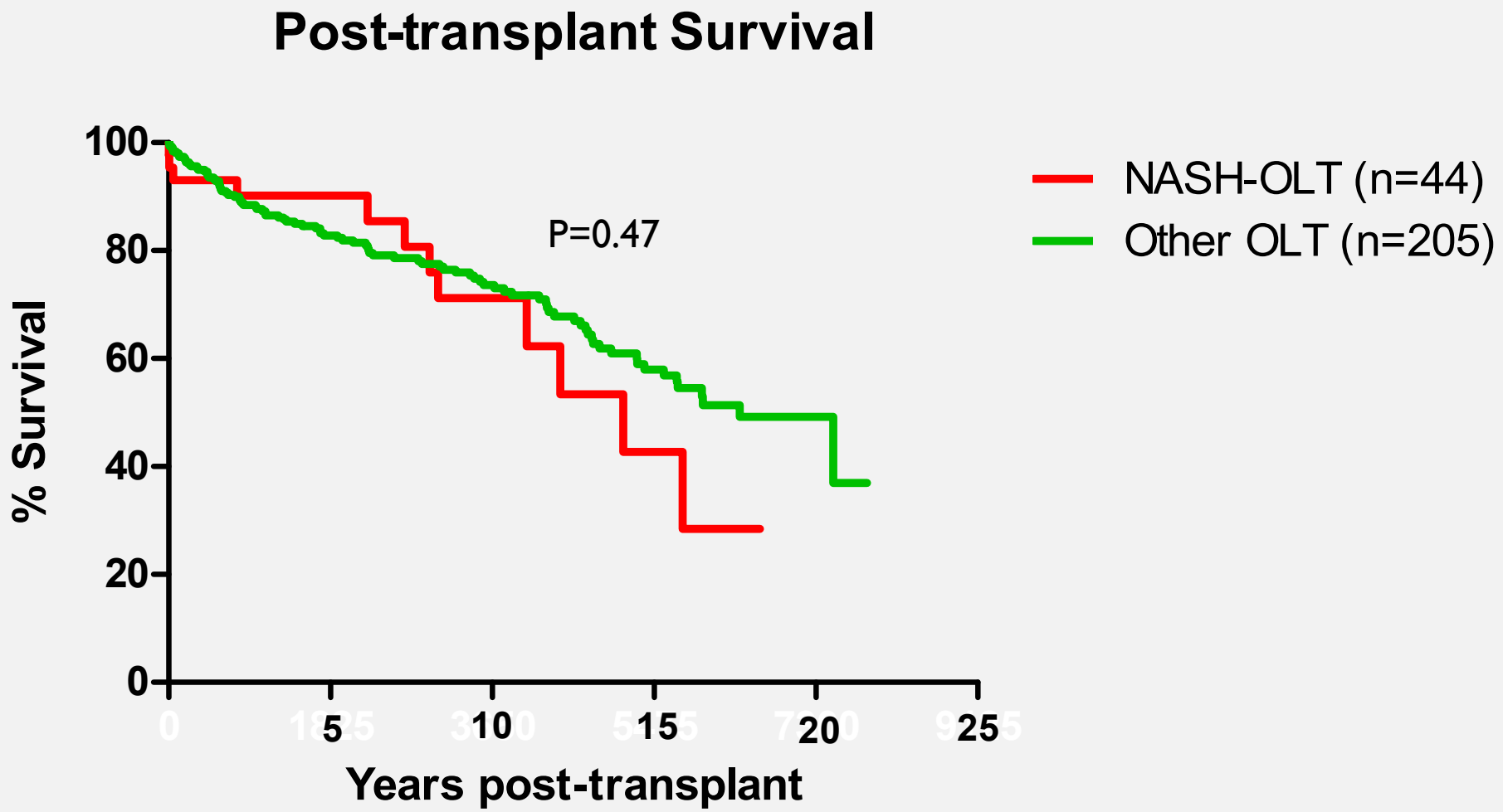
  -Severe myelodysplasia.

  -General decline/Private hospital level of care

POST-TRANSPLANT SURVIVAL NASH-OLT VS OTHER OLT



POST-TRANSPLANT SURVIVAL NASH-OLT VS HBV OR HCV



CONCLUSION

- The number of liver transplants for NASH increased significantly during the study period.
- NASH population had a similar 10-year survival post-transplant (71%) comparted to non-NASH or viral hepatitis group at NZLTU
- Half of late deaths (55%) post transplant were related to complications of metabolic syndrome
- Management of obesity and metabolic complications following transplantation for NASH will be a major challenge for NZLTU and referring centres in the future.

NASH/TRANSPLANTATION CHALLENGES

- **Older age**

- Higher BMI

  > Donor : liver steatosis

  > Recipient :

  -Comorbidities including CVS and renal.

- **Medical weight loss :**

  > Durability

- ***Bariatric surgery***

  >**Type** : Sleeve Vs Roux-en-Y gastric bypass Vs gastric banding

  >**Timing** :

  -Pre-transplant

  -Simultaneous with transplant

  -Post-transplant

- **Weight recidivism**

SIMULTANEOUS LT WITH SLEEVE GASTRECTOMY

- All adults listed for LT since 2006 with BMI ≥35 were enrolled in weight loss program
- Combined LT/SG for those BMI remained >35

- 74 patients enrolled :

  > 45 had LT alone

  > 29 had combined LT + SG

- Long-term outcomes available on 49 who had >3 years F/U:

  > 36 Had LT alone

  > 13 had LT + SG

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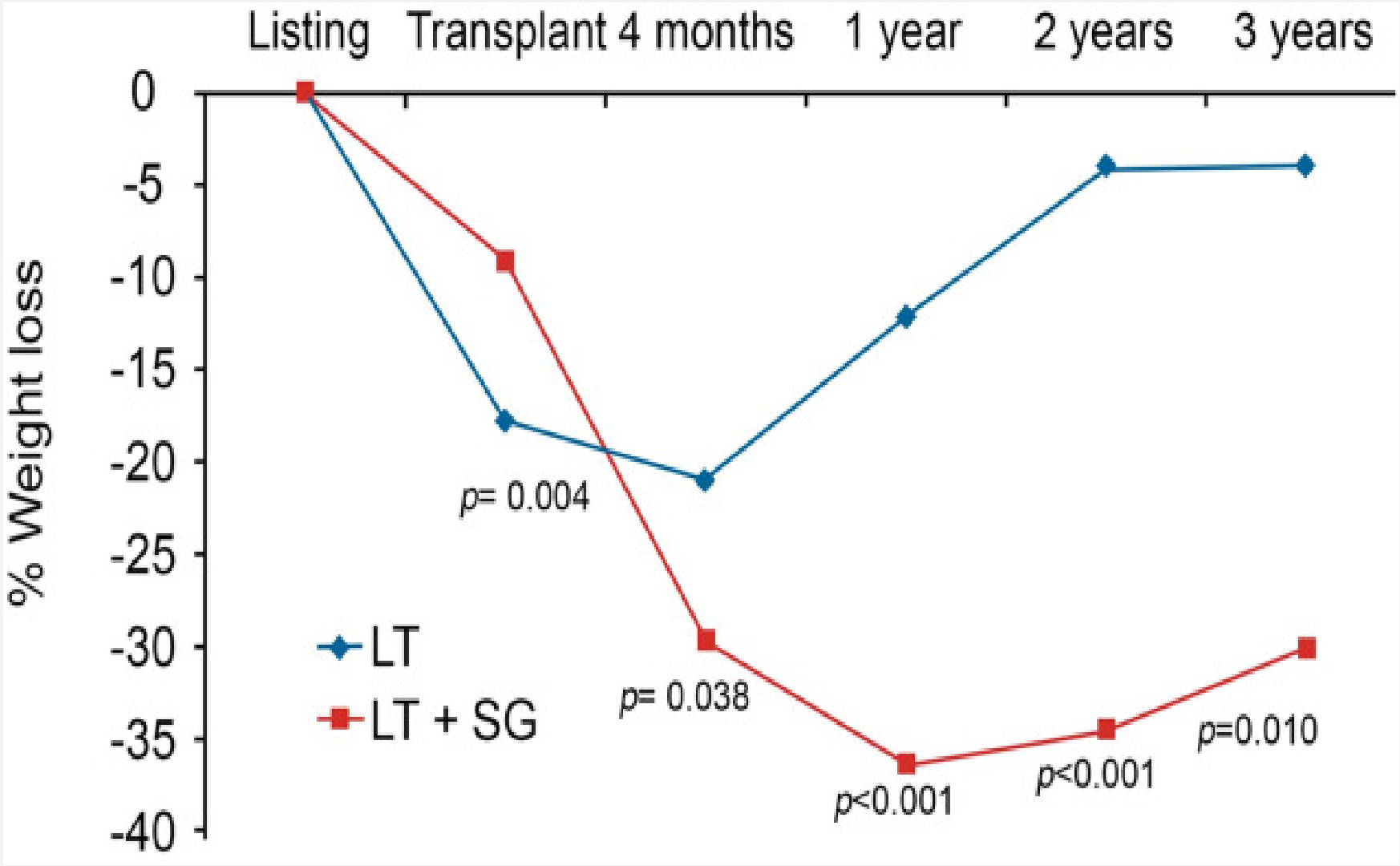
Long-term outcomes of patients undergoing simultaneous liver transplantation and sleeve gastrectomy



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SIMULTANEOUS LT WITH SLEEVE GASTRECTOMY

- **Short term outcomes** : low complications rates related to SG
  - > 1 patient had staple line leak
  - > 1 patient had excessive weight loss
  - > 2 patients had reflux

- **Long-term outcomes** : patients who underwent LT + SG
  - > Maintained a significantly higher percentage of body weight loss.
  - > Lower prevalence of hypertension/insulin resistance/hepatic steatosis.
  - > Required fewer antihypertensive medications and lipid agents .

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THANK YOU