

ISACC Trial

**Effect of a Multidisciplinary Team
Approach on Major Adverse
Kidney Events in Patients with
Acute Kidney Disease:
A Randomized Clinical Trial**



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Declaration



Speaker Name:
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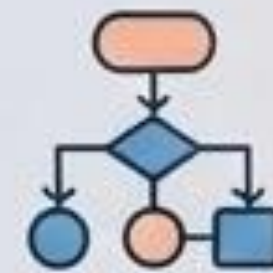
Conflict of Interest Disclosure:
I have no conflict of interest to disclose about the subject matter of this presentation.

Outline



1. Trial Background & Rationale

Trial compose of background & rationale



2. Study Design & Methodology

Study design & study: methodology



3. Eligibility Criteria

Eligibility criteria & silaniity criteria



4. Key Endpoints & Objectives

Targetendpoints & vacves Acute kidney disease



5. Conclusion

Summary of key findings and implications



6. Q&A

Questiones & Q&A



Background & The Problem

The Continuum



The Problem.

Patients get
“Lost in Transition”



Failure of previous trials (e.g.,
FUSION) using surveillance only.

Hypothesis:



Comprehensive MDT



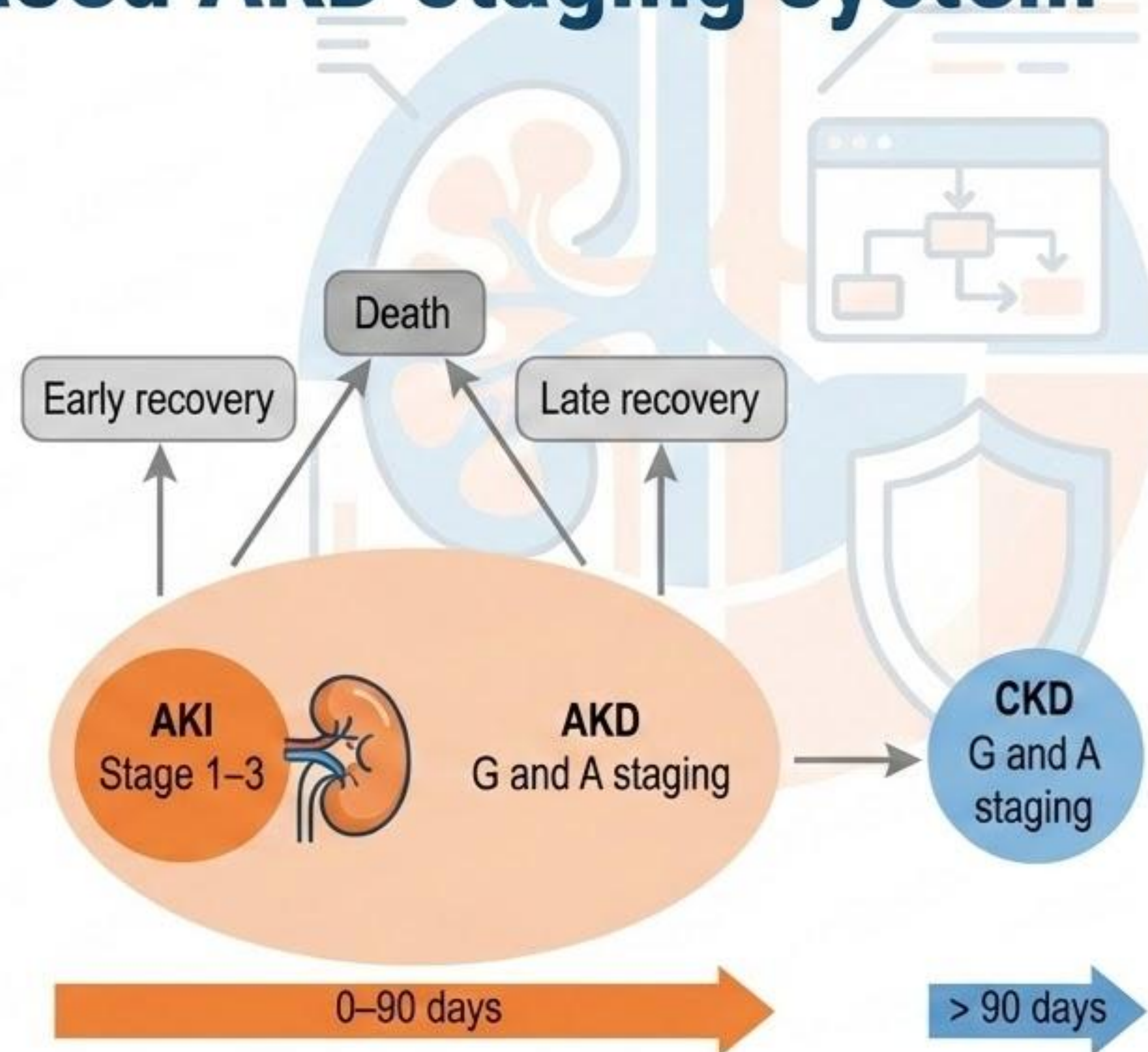
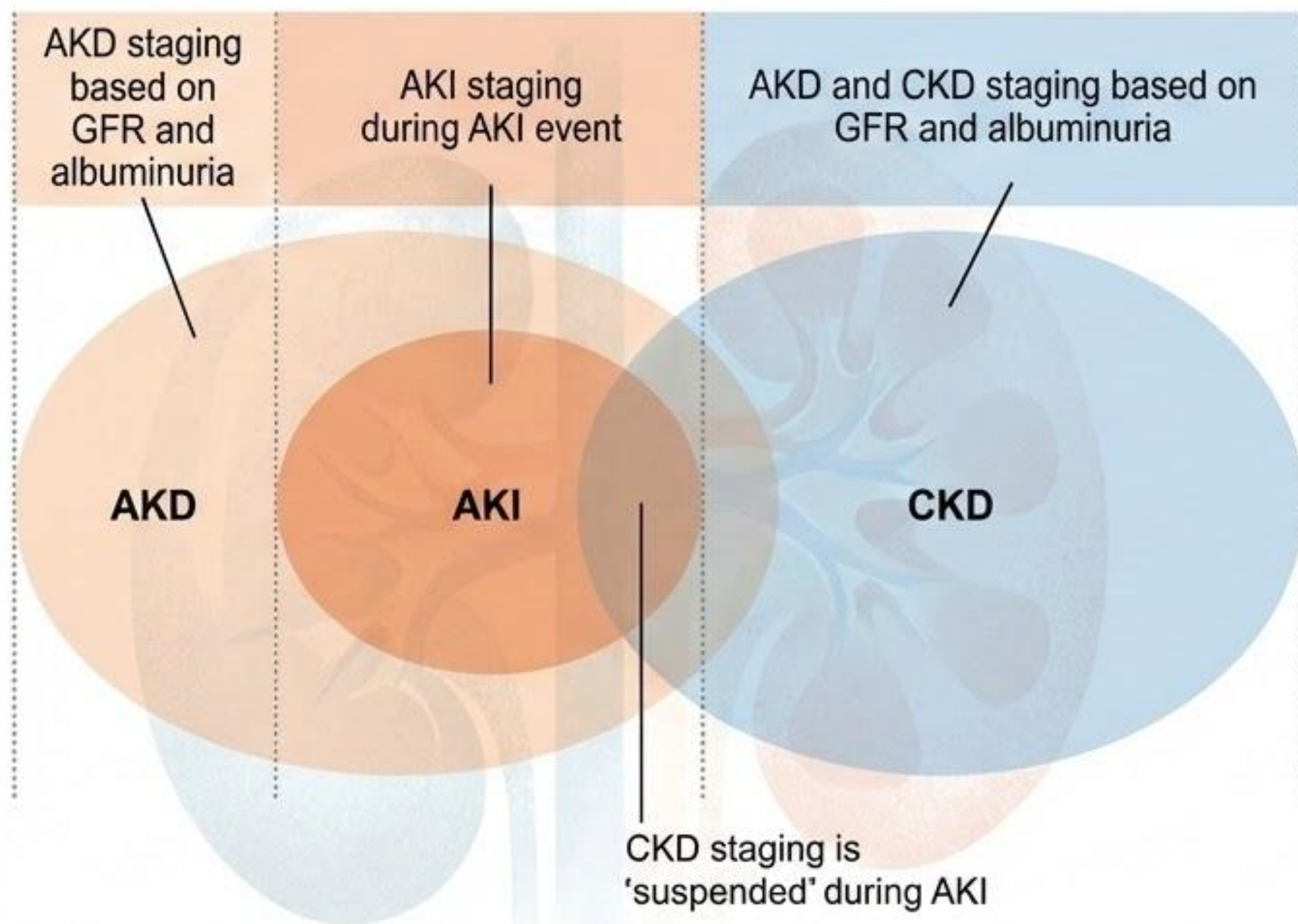
MDT > Standard Care



Standard Care

KDIGO Consensus: CKD-based AKD staging system

Kidney International (2021) 100:516–526



Holistic CKD Care: Conventional and Supportive Care

Supportive care

Symptom management

Palliative care
Stop, reduce frequency, or do not start dialysis

Conventional care

Kidney-preserving care

Slow progression, prevent or delay dialysis, improve cardiovascular risk

Diet and lifestyle



Pharmacotherapy

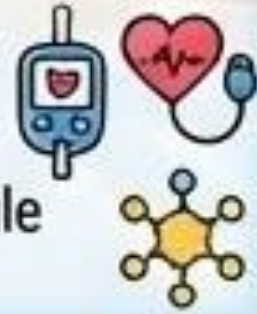
For disease progression

- RAAS blockers
- SGLT2 inhibitors
- MR antagonists
- Disease-specific drugs

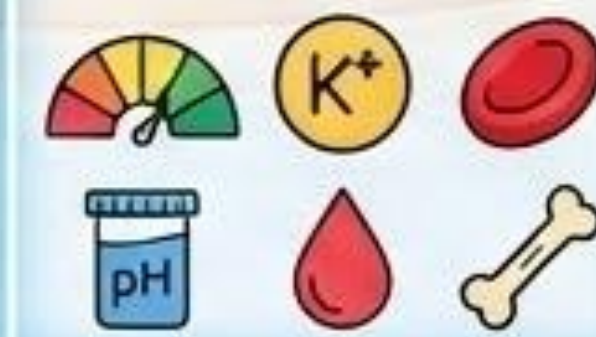


For cardiovascular risk management

- BP cuff
- Glucometer
- Lipid molecule
- Diuretics



For other comorbidities



Infection control and acute kidney injury prevention

Incremental transition to dialysis

Renal replacement therapy:
dialysis or transplantation



Study Design



Design: Prospective, Open-label RCT (N=261)



1. Standard Care (N=130)

Routine follow-up.

2. MDT Intervention (N=131)

- Pharmacist: Deprescribing NSAIDs, RAASi adjustment.
- Dietitian: Medical Nutrition Therapy.
- Nephrologist: Surveillance.

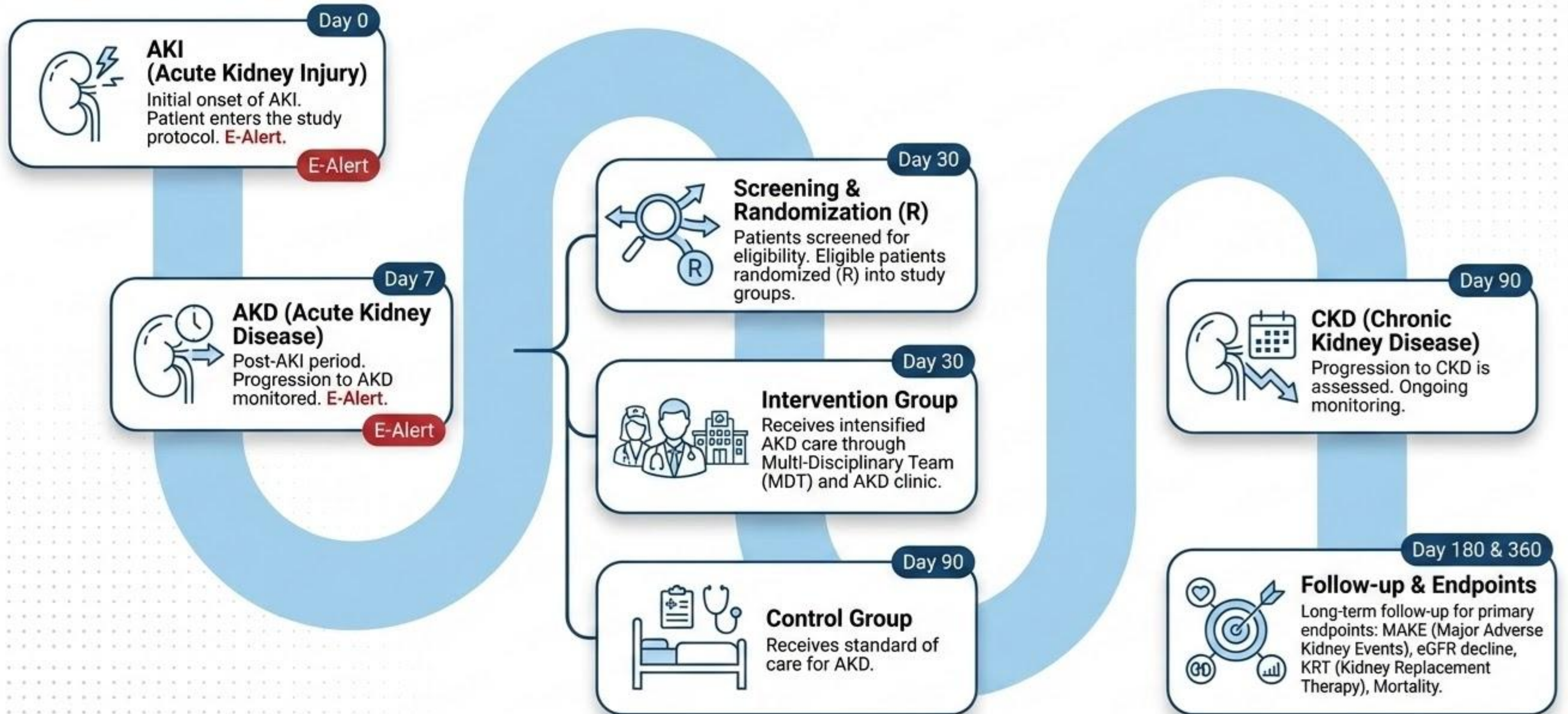


Primary Outcome: MAKE at 90 Days (Death, New RRT, CKD Progression).

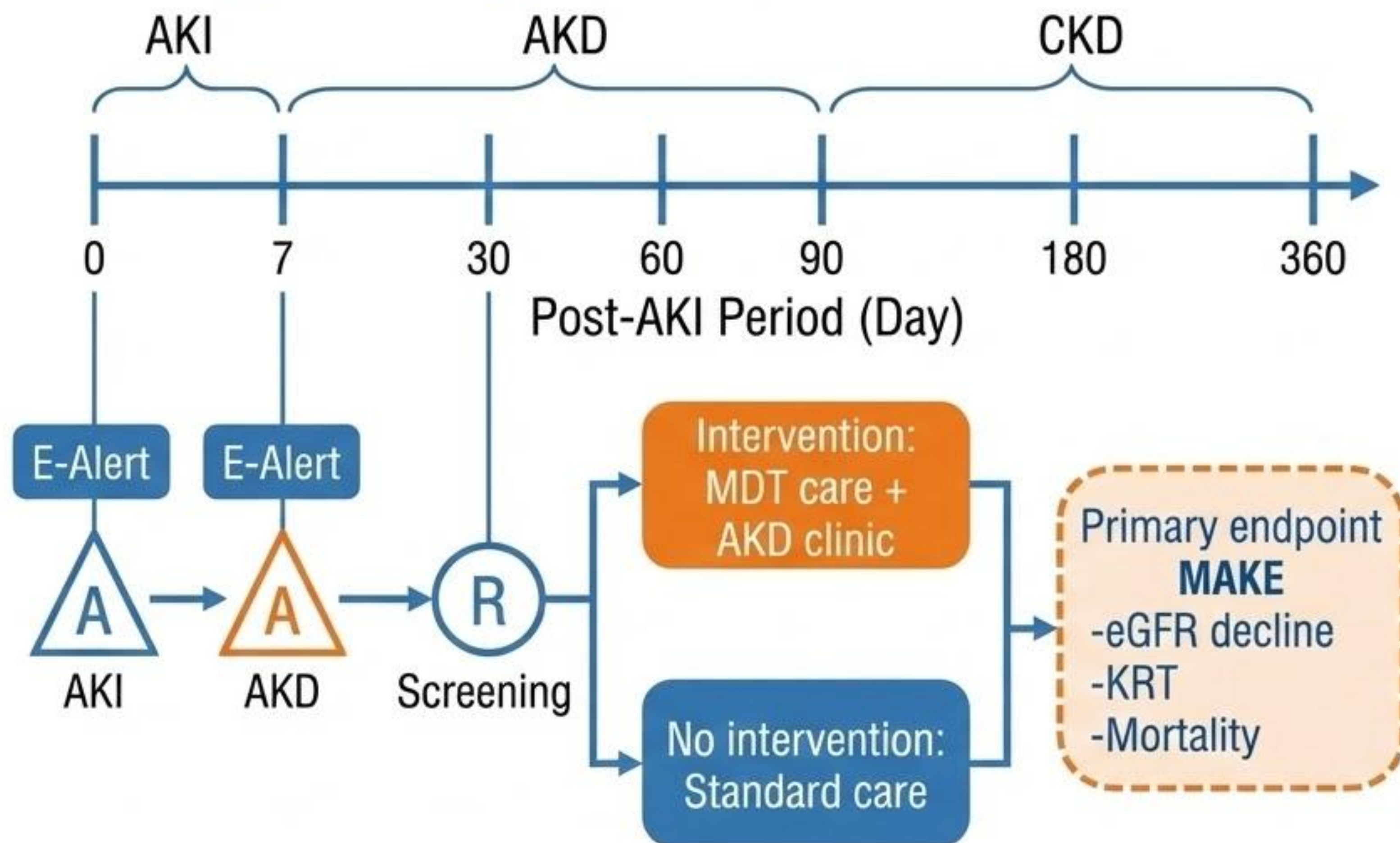




ISACC Clinical Trial: Intensified AKD Care to Reduce CKD



Study Design



Intensified AKD Care to Reduce CKD: ISACC Trial - Study Eligibility Criteria

✓ Inclusion Criteria

- ✓ Age ≥ 20 yrs
- ✓ Acute kidney disease (AKD)

✗ Exclusion Criteria

- ✗ Pregnancy
- ✗ Imminent death within 3 months
- ✗ DNR(+)
- ✗ Those who cannot or refuse to sign the test consent form.
- ✗ Determined by the trial host that it is not suitable for participation in the trial

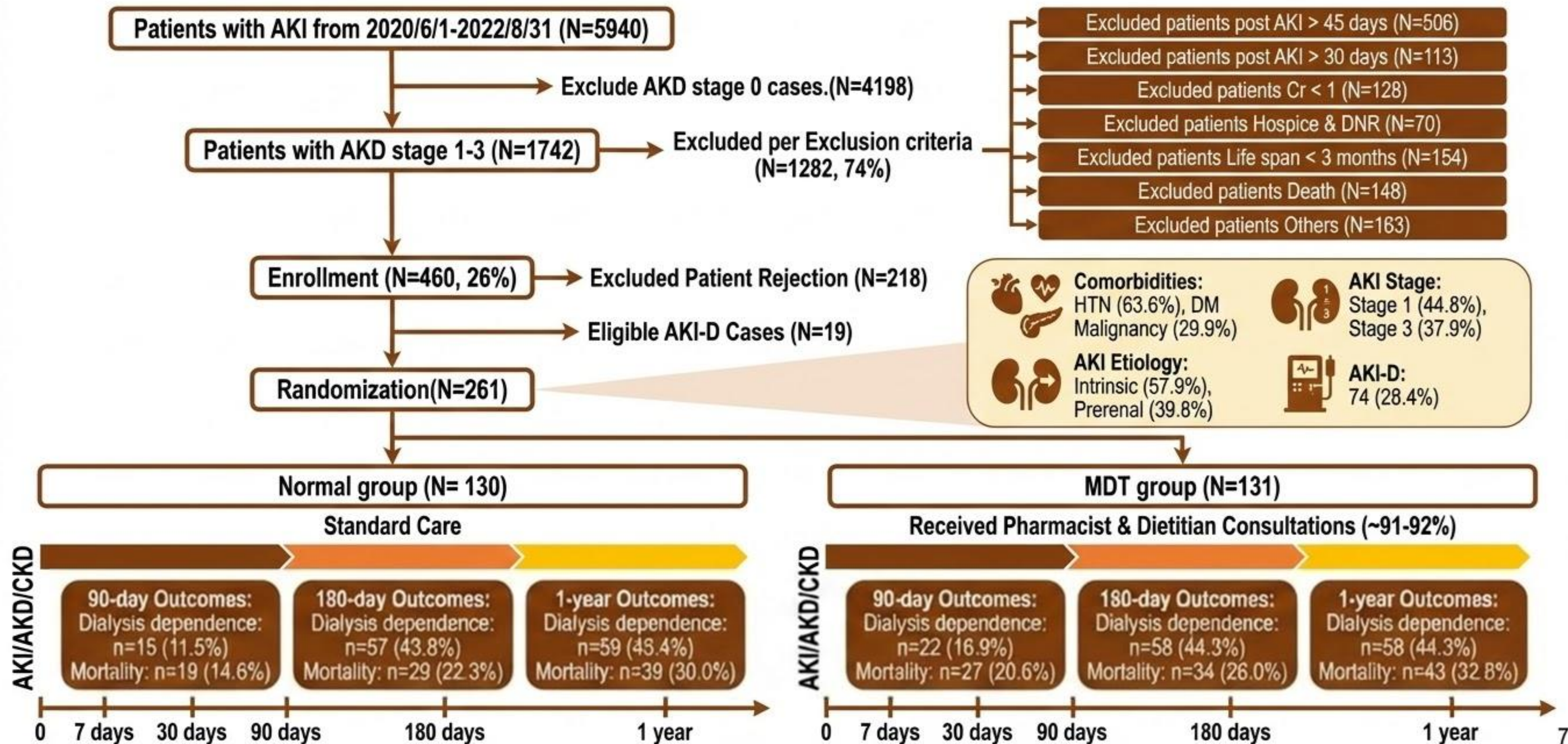
The background features a light blue grid with faint, stylized medical illustrations. At the top, there is a horizontal line representing an ECG (heart rate) with several peaks. To the right of the ECG are two stylized kidneys. Below the word 'Results' is a thick, dark blue curved line. At the bottom right, there is another ECG line and two more stylized kidneys.

Results



臺北醫藥大學
TAIPEI MEDICAL UNIVERSITY

Participant Enrollment & Study Flowchart with Baseline Characteristics



Baseline Characteristics

Characteristic	Overall	MDT Group	Standard Group	p
Age, mean $\pm$ 5D, y	67.57 $\pm$ 14.98	67.75 $\pm$ 13.98	67.39 $\pm$ 15.98	0.848
Male sex, No. (%)	160 (81.1%)	78 (69.9)	82 (63.1)	0.646
Comorbidities, No. (%)				
Diabetes mellitus	122 (46.7%)	57 (43.3)	65 (50.0)	0.354
Hypertension	166 (63.6%)	77 (68.5)	89 (68.5)	0.134
Gout	22 (22.4%)	9 (6.9)	13 (10.1)	0.492
Concree heart failure	40 (15.3%)	19 (14.5)	21 (16.2)	0.843
Coronary artery disease	52 (59.9%)	23 (27.7)	29 (22.3)	0.429
Cerebrovascular accident	28 (10.7%)	11 (8.4)	17 (13.1)	0.307
Malignancy	78 (29.9%)	44 (41.1)	37 (28.5)	0.715
Baseline Kidney Function				
eGFR, mean $\pm$ 5D, mL/min/1.73 m ²	69.38 $\pm$ 39.78	68.21 $\pm$ 39.30	70.38 $\pm$ 40.38	0.719
Baseline CKD Stage, No. (%)				0.843
Stage 1 or non-CKD	82 (82.4%)	44 (54.4)	37 (28.5)	
Stage 2	61 (23.4%)	26 (19.9)	35 (26.9)	
Stage 3a	20 (7.7%)	11 (8.4)	9 (6.9)	
Stage 3b	23 (23.8%)	12 (9.2)	11 (15.5)	
Stage 5	37 (13.4%)	17 (10.3)	20 (15.4)	
Unknown	11 (4.2%)	6 (4.8)	5 (3.8)	
Etiology of AKI, No. (%)				0.612
Prerenal hyperperherian	104 (99.7%)	54 (41.2)	50 (38.5)	
Intrinsic renal disease	151 (57.9%)	73 (59.7)	78 (66.0)	
Postrenal disease	6 (2.3%)	4 (3.1)	2 (1.5)	
AKI Stage, No. (%)				0.962
Stage 1	117 (44.6%)	59 (54.5)	58 (44.6)	
Stage 2	45 (17.2%)	22 (16.9)	23 (17.7)	
Stage 3	99 (49.9%)	50 (38.8)	49 (37.7)	
AKD Stage, No. (%)				0.893
Stage 1	85 (83.0%)	42 (42.2)	44 (33.8)	
Stage 2	49 (18.8%)	26 (19.9)	23 (17.7)	
Stage 3	126 (48.3%)	63 (34.3)	63 (48.5)	

Baseline Characteristics

Population Summary



Mean Age: 67.5 years



Male: ~61%



Baseline eGFR: ~69 mL/min

High Comorbidity Burden



Diabetes: 46.7%



Hypertension: 63.6%



Key Takeaway: Groups were statistically well-balanced.

Primary Clinical Outcomes

Outcome	MDT Group (N=131)	Standard Group (N=130)	Relative Risk (95% CI)	p	Hazard Ratio (95% CI)*
 MAKE at 90 Days	37 (28.2%)	35 (26.9%)	1.05 (0.71-1.55)	0.920	1.02 (0.64-1.62)
 Death	27 (20.6%)	18 (13.8%)	1.49 (0.86-2.57)	0.200	1.51 (0.83-2.75)
 New RRT	15 (11.5%)	22 (16.9%)	0.68 (0.37-1.25)	0.276	0.66 (0.34-1.28)



Key Takeaway: Trends Favor MDT, but No Early Separation

While numerical trends for Death and New RRT favor the MDT group, there is no statistically significant difference in primary outcomes at 90 days.

Secondary Clinical Outcomes

Outcome	MDT Group (N=131)	Standard Group (N=130)	Relative Risk (95% CI)	p	Hazard Ratio (95% CI)
Major Adverse Kidney Events (MAKE)					
At 180 Days	52 (39.7%)	57 (43.8%)	0.91 (0.68-1.21)	0.579	0.79 (0.55-1.16)
At 1 Year	64 (48.9%)	66 (50.8%)	0.96 (0.75-1.23)	0.853	0.78 (0.56-1.11)
All-cause Mortality					
At 180 Days	34 (26.6%)	29 (22.3%)	1.16 (0.74-1.79)	0.587	1.21 (0.74-1.99)
At 1 Year	43 (32.8%)	39 (30.0%)	1.09 (0.76-1.57)	0.720	1.17 (0.76-1.81)
CKD Progression					
At 180 Days	9 (6.9%)	15 (11.5%)	0.60 (0.27-1.31)	0.275	0.52 (0.23-1.20)
At 1 Year	14 (10.7%)	21 (16.2%)	0.66 (0.35-1.24)	0.265	0.59 (0.30-1.17)
RRT Required					
At 180 Days	58 (44.3%)	57 (43.8%)	1.01 (0.77-1.33)	0.956	0.65 (0.35-1.23)
At 1 Year	58 (44.3%)	59 (45.4%)	0.98 (0.75-1.28)	0.956	0.61 (0.33-1.14)
AKI Recovery Status					
At 90 Days	16/128 (12.5%)	13/128 (10.2%)	1.23 (0.62-2.45)	0.693	-
At 180 Days	14/112 (12.5%)	17/123 (13.8%)	0.90 (0.47-1.75)	0.916	-
At 1 Year	11/112 (9.8%)	13/123 (10.6%)	0.88 (0.41-1.89)	0.845	-

Primary Outcome: MAKE at 90 Days

Result



MDT Group:
28.2%



Standard Care:
26.9%

Statistics



Hazard Ratio: **1.02**
(95% CI 0.64-1.62)

P-value = **0.92**
(Neutral)

Conclusion

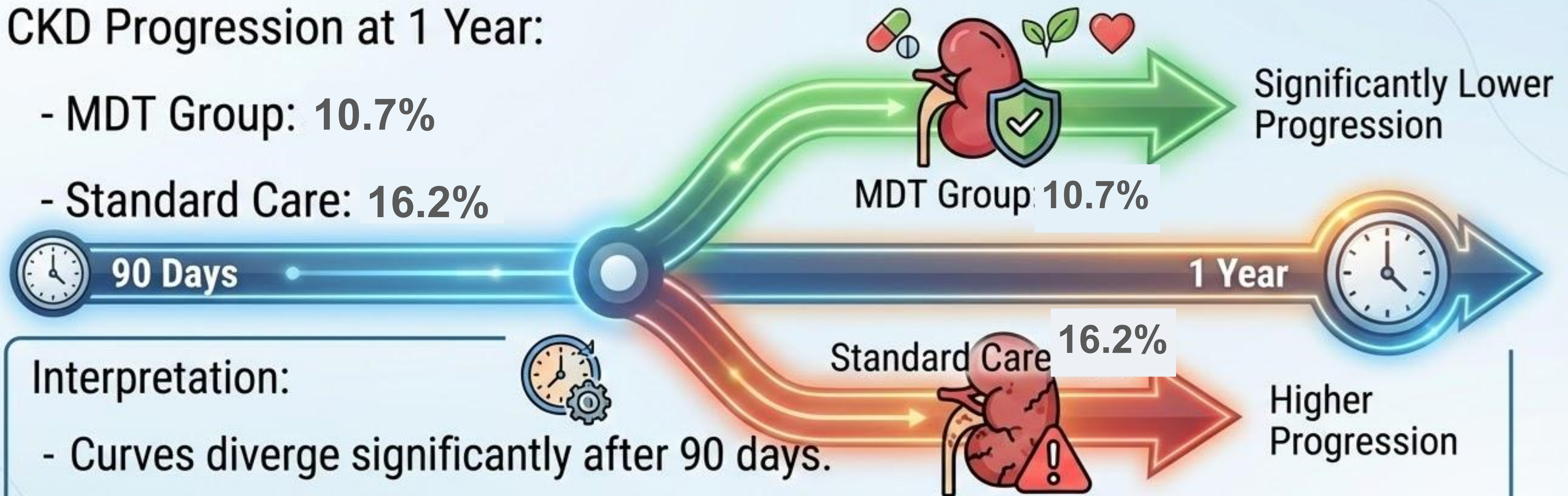


**No significant
difference in the
overall population.**

Long-term Signal: The Lag Effect

CKD Progression at 1 Year:

- MDT Group: 10.7%
- Standard Care: 16.2%

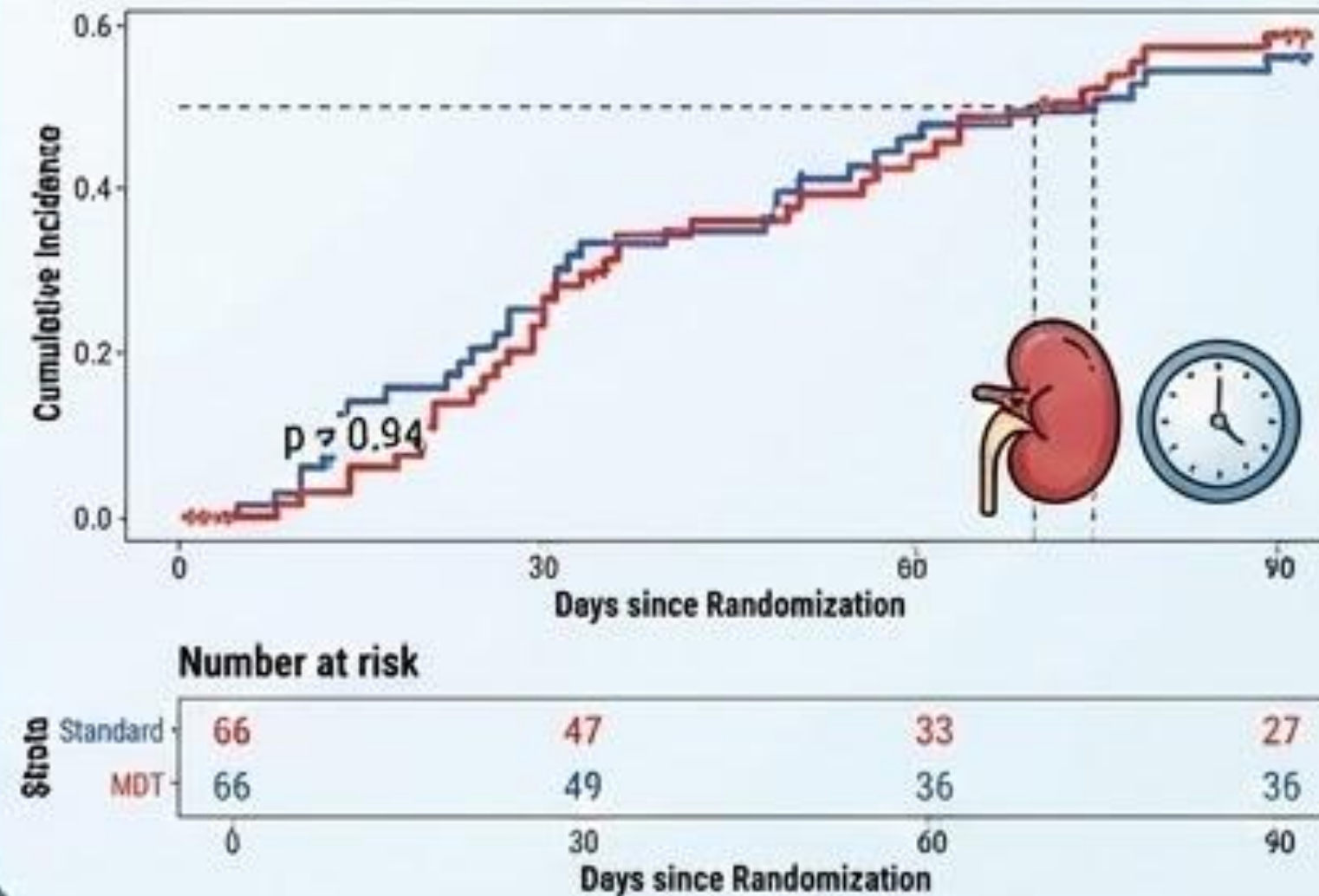


Interpretation:

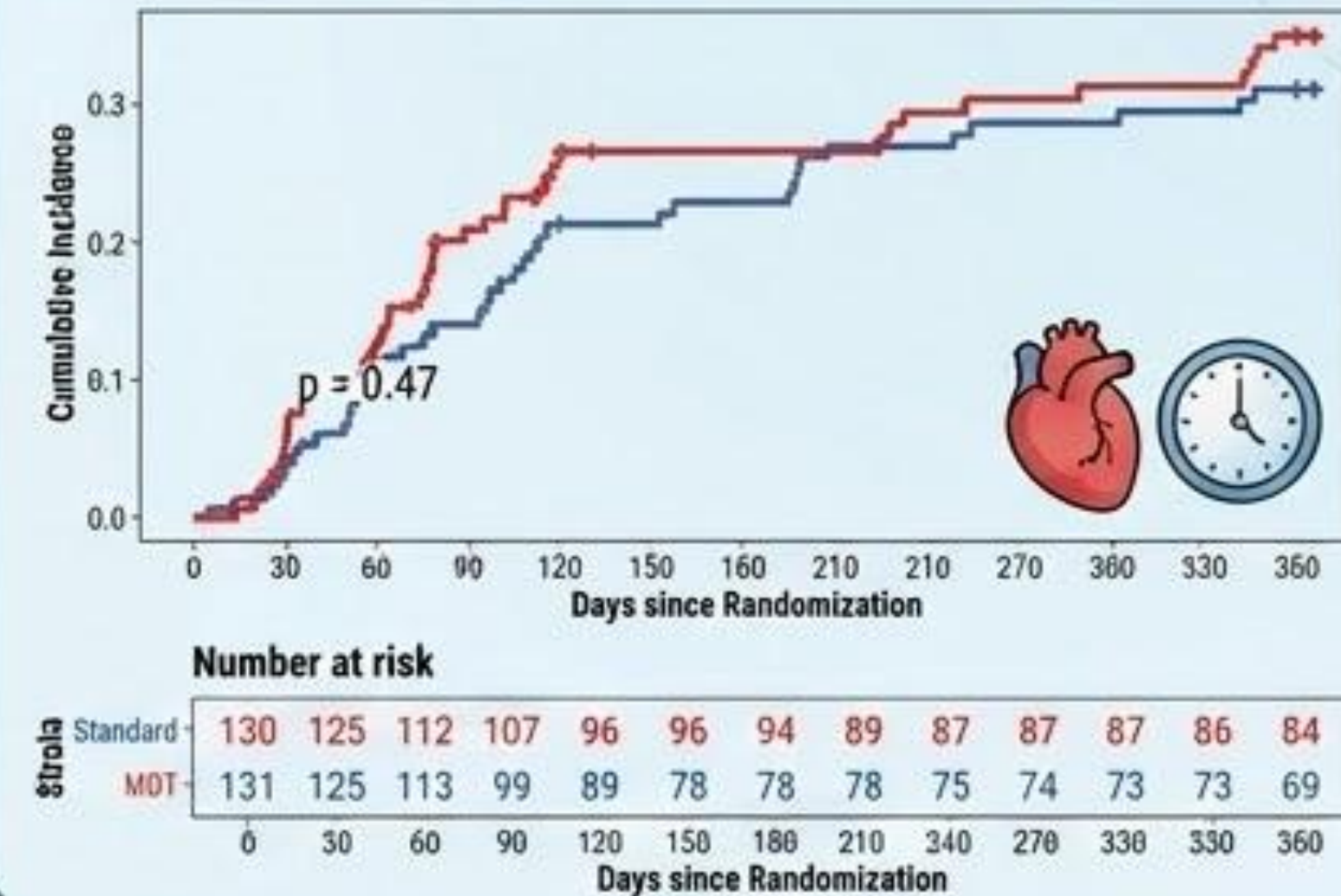
- Curves diverge significantly after 90 days.
- Nutritional and Pharmacological interventions take time to remodel kidney structure.

Kaplan-Meier Estimates of Key Clinical Outcomes

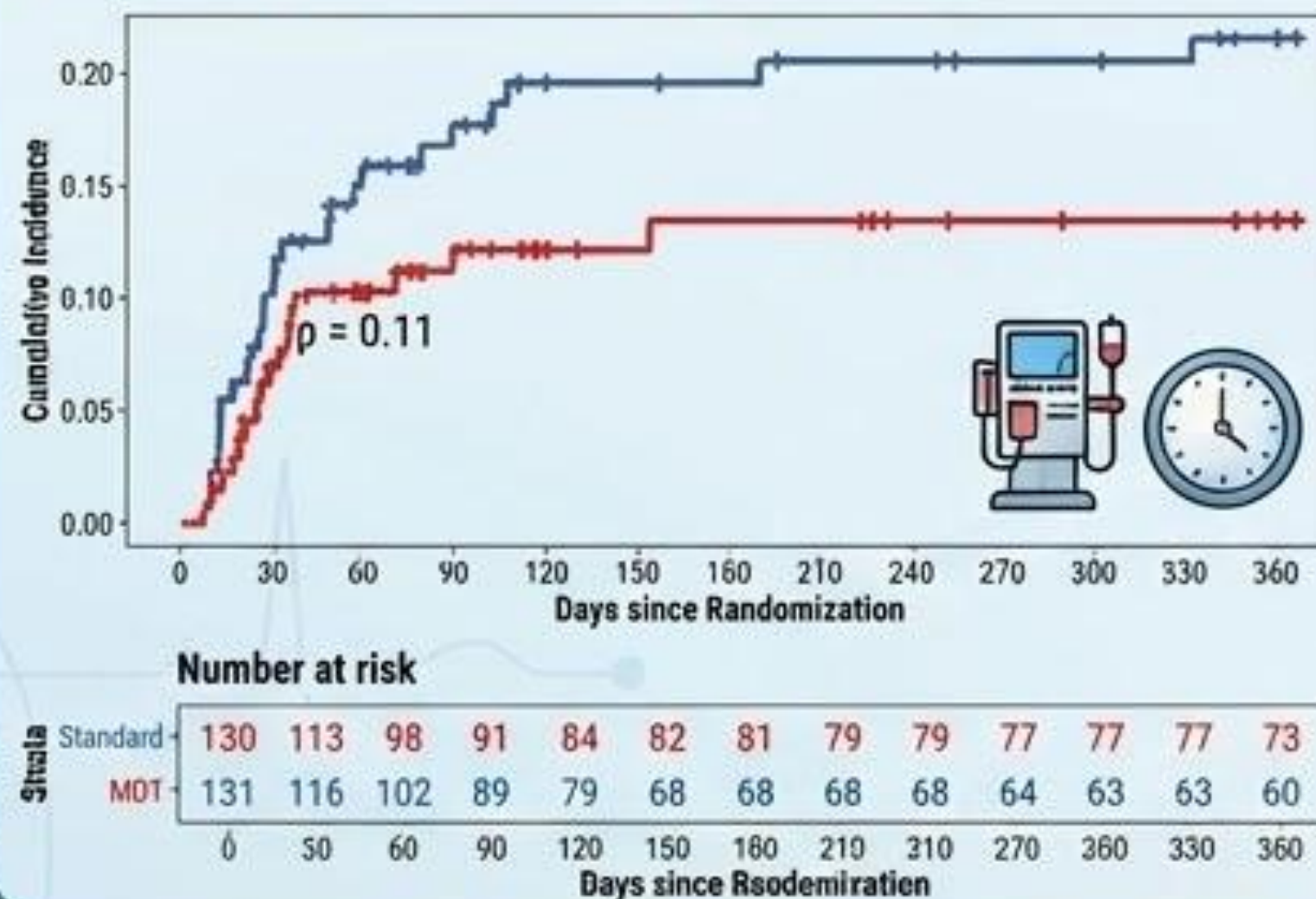
A. Time to MAKE (90 Days)



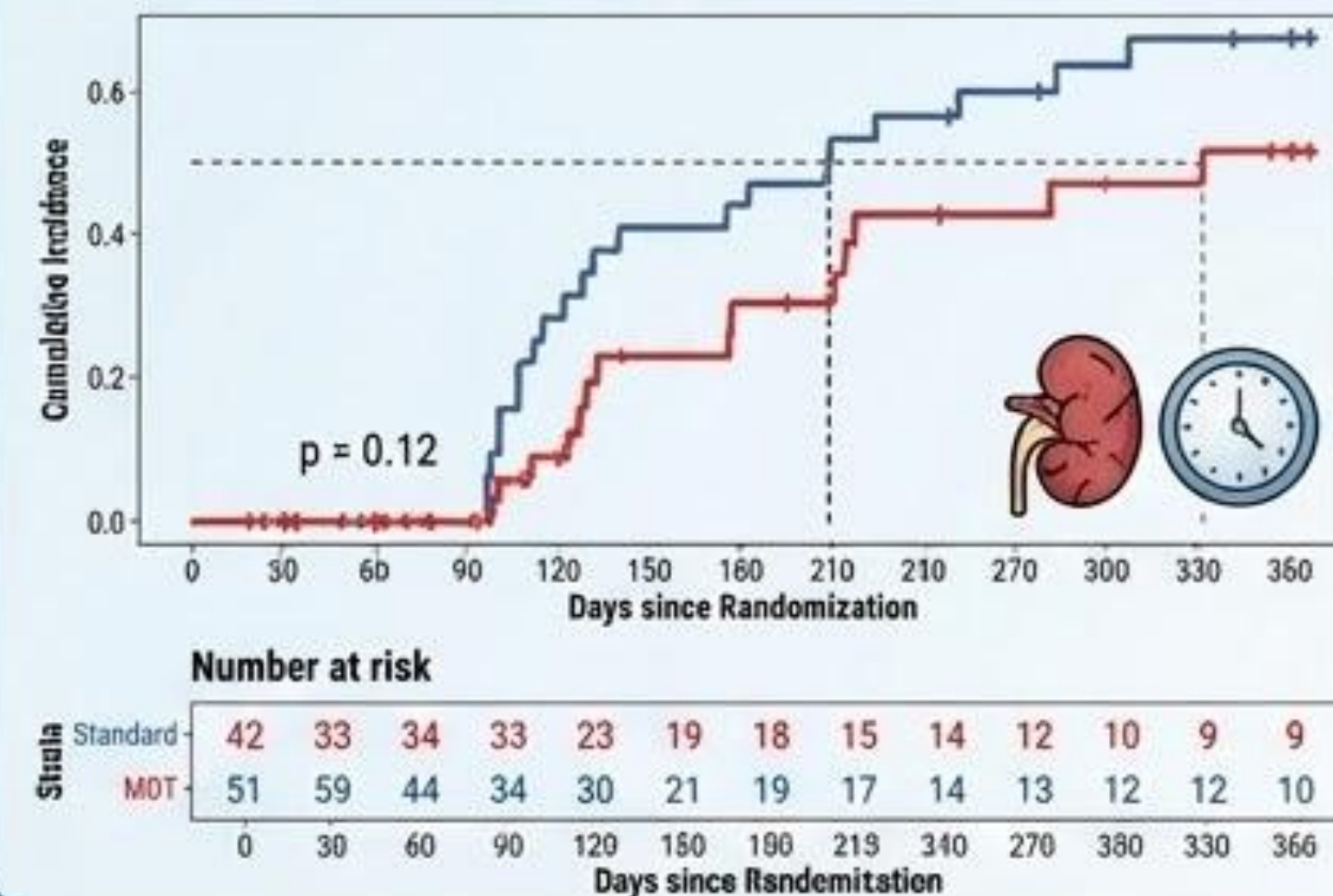
B. Time to All-Cause Mortality (1 Year)



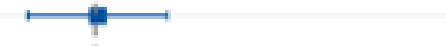
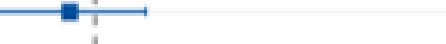
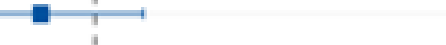
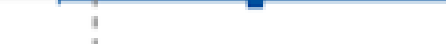
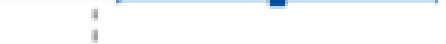
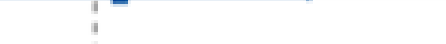
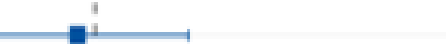
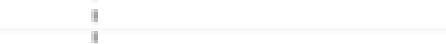
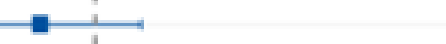
C. Time to New RRT (1 Year)



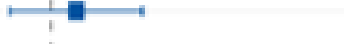
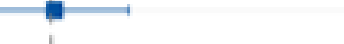
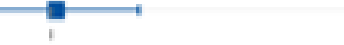
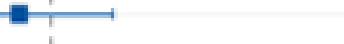
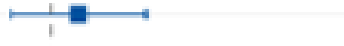
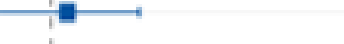
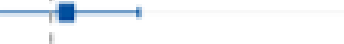
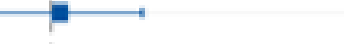
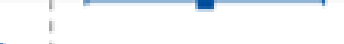
D. Time to CKD progression



Supplementary Table 1 Hazard Ratio Subgroup Analysis for MAKE outcome at 90 days

Subgroup_Level	MDT_n	Std_n	HR 95% CI	HR 95% CI	p_interaction
Overall	37/131	35/130		1.02 (0.64-1.62)	
Age Group					0.089
< 60 Years	8/38	3/37		2.57 (0.68-9.72)	
≥ 60 Years	29/93	32/93		0.84 (0.51-1.40)	
Sex					0.853
Female	12/53	12/48		0.94 (0.42-2.10)	
Male	25/78	23/82		1.05 (0.60-1.86)	
Diabetes Mellitus					0.074
No	16/74	18/65		0.70 (0.36-1.37)	
Yes	21/57	17/65		1.64 (0.86-3.12)	
Hypertension					0.525
No	15/54	9/41		1.34 (0.59-3.07)	
Yes	22/77	26/89		0.98 (0.56-1.73)	
Gout					0.742
No	34/122	32/117		1.03 (0.64-1.67)	
Yes	3/9	3/13		0.79 (0.16-3.99)	
Congestive Heart Failure					0.131
No	31/112	31/109		0.90 (0.55-1.48)	
Yes	6/19	4/21		2.88 (0.79-10.57)	
Coronary Artery Disease					0.038
No	29/108	27/101		0.87 (0.52-1.47)	
Yes	8/23	8/29		3.35 (1.17-9.60)	
Cerebrovascular Accident					0.736
No	32/120	30/113		1.00 (0.61-1.65)	
Yes	5/11	5/17		1.18 (0.34-4.11)	
Malignancy					0.883
No	25/90	27/93		1.06 (0.61-1.82)	
Yes	12/41	8/37		1.17 (0.48-2.85)	
Baseline eGFR (mL/min)					0.981
eGFR ≥ 60	13/46	13/59		1.04 (0.48-2.24)	
eGFR < 60	13/36	16/34		1.12 (0.54-2.34)	
Baseline CKD History					0.492
No	13/51	8/42		1.45 (0.60-3.49)	
Yes	24/80	27/88		1.07 (0.62-1.86)	
Dialysis Requirement					0.566
No	30/90	27/97		1.07 (0.64-1.81)	
Yes	7/41	8/33		0.61 (0.20-1.88)	
AKI Stage					0.300
AKI AKI1	18/59	12/58		1.13 (0.55-2.35)	
AKI AKI2	8/22	2/23		3.15 (0.66-14.89)	
AKI AKI3	11/50	21/49		0.89 (0.43-1.85)	
AKD Stage					0.007
AKD AKD1	9/42	2/44		4.04 (0.87-18.70)	
AKD AKD2	12/26	4/23		2.66 (0.85-8.29)	
AKD AKD3	16/63	29/63		0.61 (0.33-1.13)	
AKI Etiology					0.106
1.Prerenal Hypoperfusion	22/54	12/50		1.55 (0.77-3.14)	
2.Intrinsic	14/73	23/78		0.70 (0.36-1.35)	
3.Post renal	1/4	0/2		NC	

Supplementary Table 2 Hazard Ratio Subgroup Analysis for all cause mortality in 1 year

Subgroup_Level	MDT_n	Std_n	HR 95% CI	HR 95% CI	p_interaction
Overall	43/131	39/130		1.17 (0.76-1.81)	
Age Group					0.243
< 60 Years	10/38	6/37		1.93 (0.70-5.31)	
≥ 60 Years	33/93	33/93		1.02 (0.63-1.65)	
Sex					0.407
Female	18/53	12/48		1.50 (0.72-3.11)	
Male	25/78	27/82		1.03 (0.60-1.77)	
Diabetes Mellitus					0.069
No	20/74	21/65		0.81 (0.44-1.49)	
Yes	23/57	18/65		1.83 (0.98-3.39)	
Hypertension					0.659
No	17/54	11/41		1.33 (0.62-2.85)	
Yes	26/77	28/89		1.11 (0.65-1.89)	
Gout					0.126
No	43/122	37/117		1.19 (0.77-1.85)	
Yes	0/9	2/13		NC	
Congestive Heart Failure					0.530
No	36/112	33/109		1.11 (0.69-1.78)	
Yes	7/19	6/21		1.60 (0.54-4.79)	
Coronary Artery Disease					0.596
No	36/108	32/101		1.10 (0.68-1.77)	
Yes	7/23	7/29		1.44 (0.51-4.13)	
Cerebrovascular Accident					0.109
No	40/120	30/113		1.38 (0.86-2.21)	
Yes	3/11	9/17		0.46 (0.12-1.69)	
Malignancy					0.569
No	26/90	27/93		1.06 (0.62-1.81)	
Yes	17/41	12/37		1.40 (0.67-2.93)	
Baseline eGFR (mL/min)					0.291
eGFR ≥ 60	19/46	19/59		1.43 (0.76-2.71)	
eGFR < 60	11/36	13/34		0.84 (0.38-1.87)	
Baseline CKD History					0.571
No	16/51	14/42		0.97 (0.47-2.00)	
Yes	27/80	25/88		1.28 (0.74-2.20)	
Dialysis Requirement					0.408
No	30/90	28/97		1.31 (0.78-2.20)	
Yes	13/41	11/33		0.87 (0.39-1.95)	
AKI Stage					0.091
AKI AKI1	21/59	16/58		1.45 (0.76-2.78)	
AKI AKI2	10/22	6/23		2.31 (0.84-6.37)	
AKI AKI3	12/50	17/49		0.64 (0.30-1.33)	
AKD Stage					0.023
AKD AKD1	12/42	8/44		1.92 (0.78-4.70)	
AKD AKD2	13/26	6/23		2.48 (0.94-6.55)	
AKD AKD3	18/63	25/63		0.65 (0.36-1.20)	
AKI Etiology					0.008
1.Prerenal Hypoperfusion	22/54	9/50		2.72 (1.25-5.92)	
2.Intrinsic	20/73	30/78		0.69 (0.39-1.22)	
3.Post renal	1/4	0/2		NC	

The Pivot: Interaction by AKD Severity

Significant Interaction ($p = 0.007$)

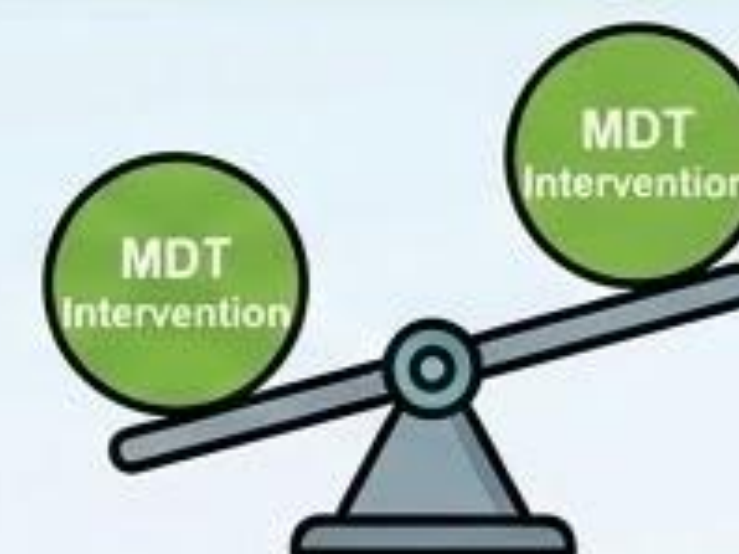
AKD Stage 1 (Mild):



HR **4.04** (Favors Standard Care) ●
Potential over-medicalization.



AKD Stage 3 (Severe):

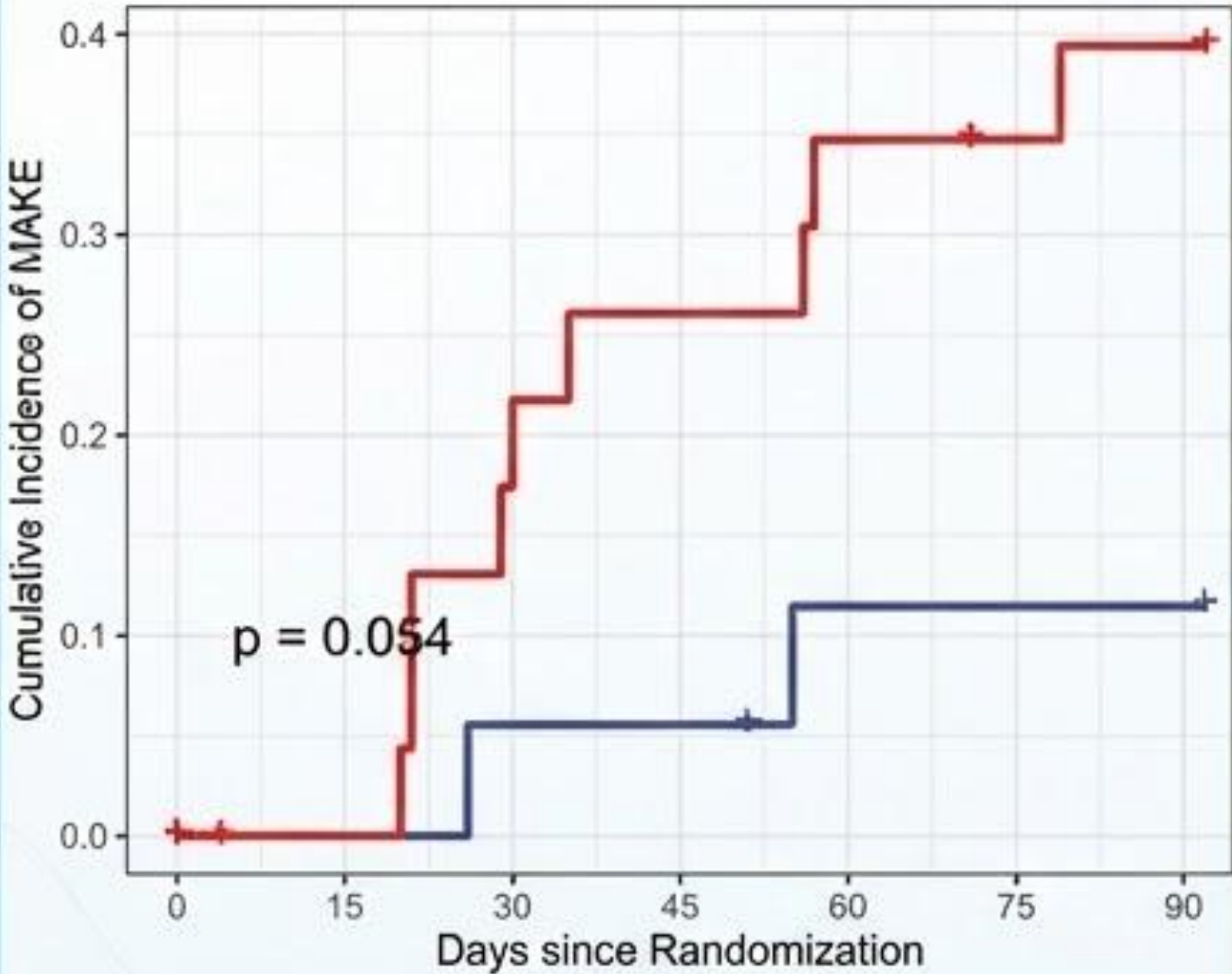


HR **0.61** (Favors MDT Intervention) ●
Benefit seen in high-risk patients.

Subgroup Analysis for MAKE outcome at 90 days

AKD Stage 1 (Mild)

Time to MAKE (90 Days) - AKD AKD1



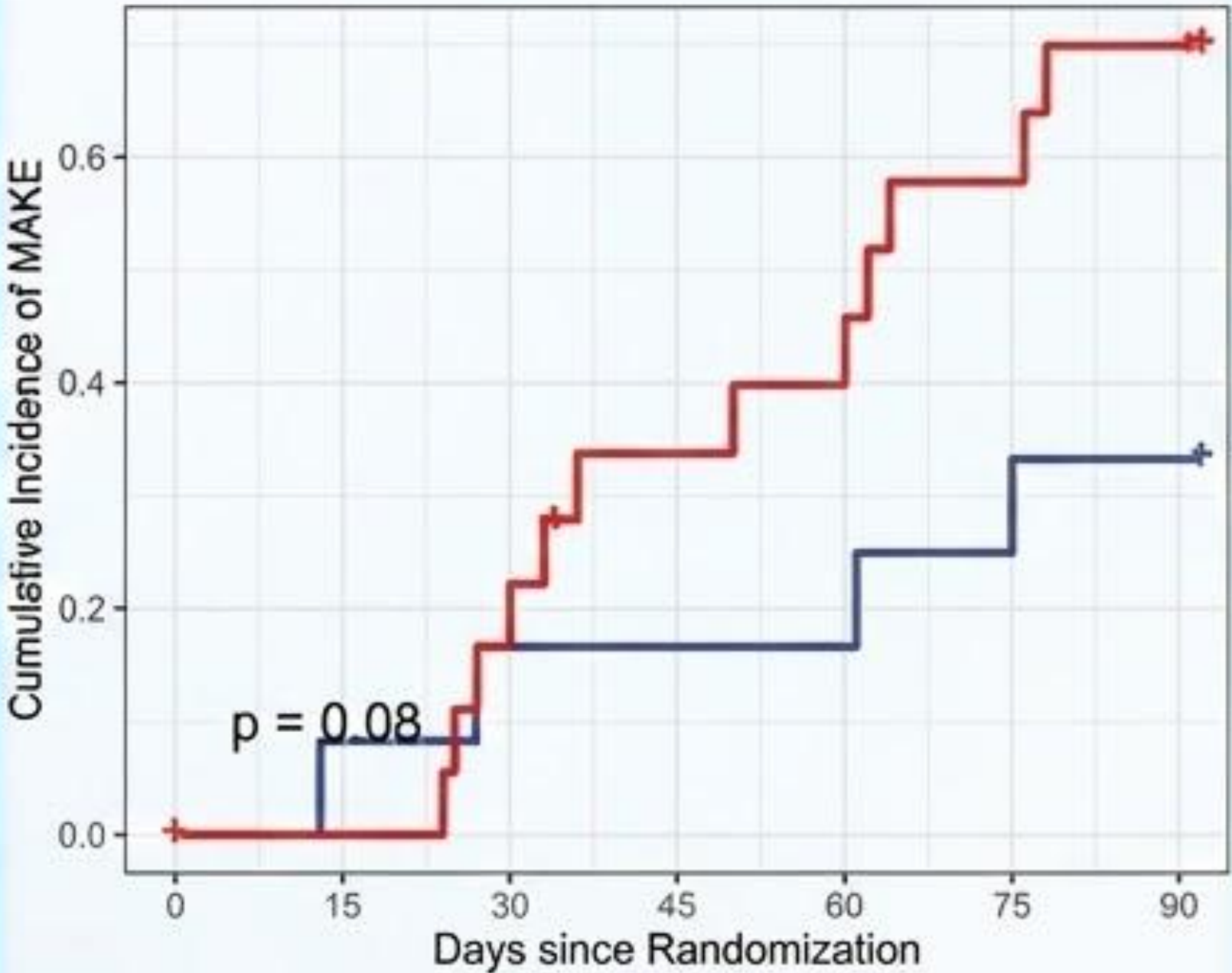
Number at risk

Strata	Standard	44	18	17	17	15	15	15
	MDT	42	23	19	17	15	14	13

Days since Randomization

AKD Stage 2 (Moderate)

Time to MAKE (90 Days) - AKD AKD2



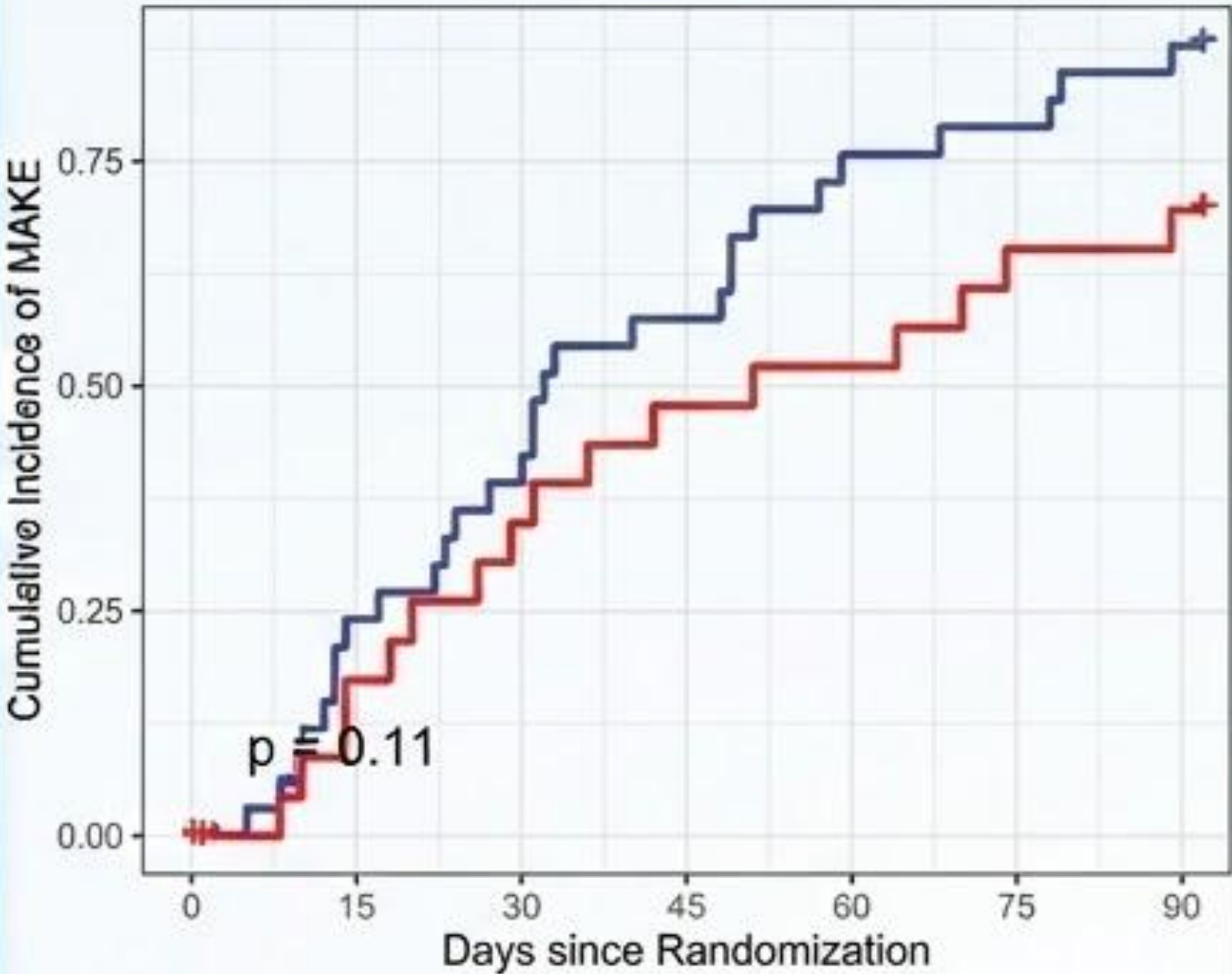
Number at risk

Strata	Standard	23	11	10	10	10	9	8
	MDT	26	18	15	11	10	7	5

Days since Randomization

AKD Stage 3 (Severe)

Time to MAKE (90 Days) - AKD AKD3



Number at risk

Strata	Standard	63	25	20	14	8	7	4
	MDT	63	19	15	12	11	8	7

Days since Randomization

Supplementary Table 3

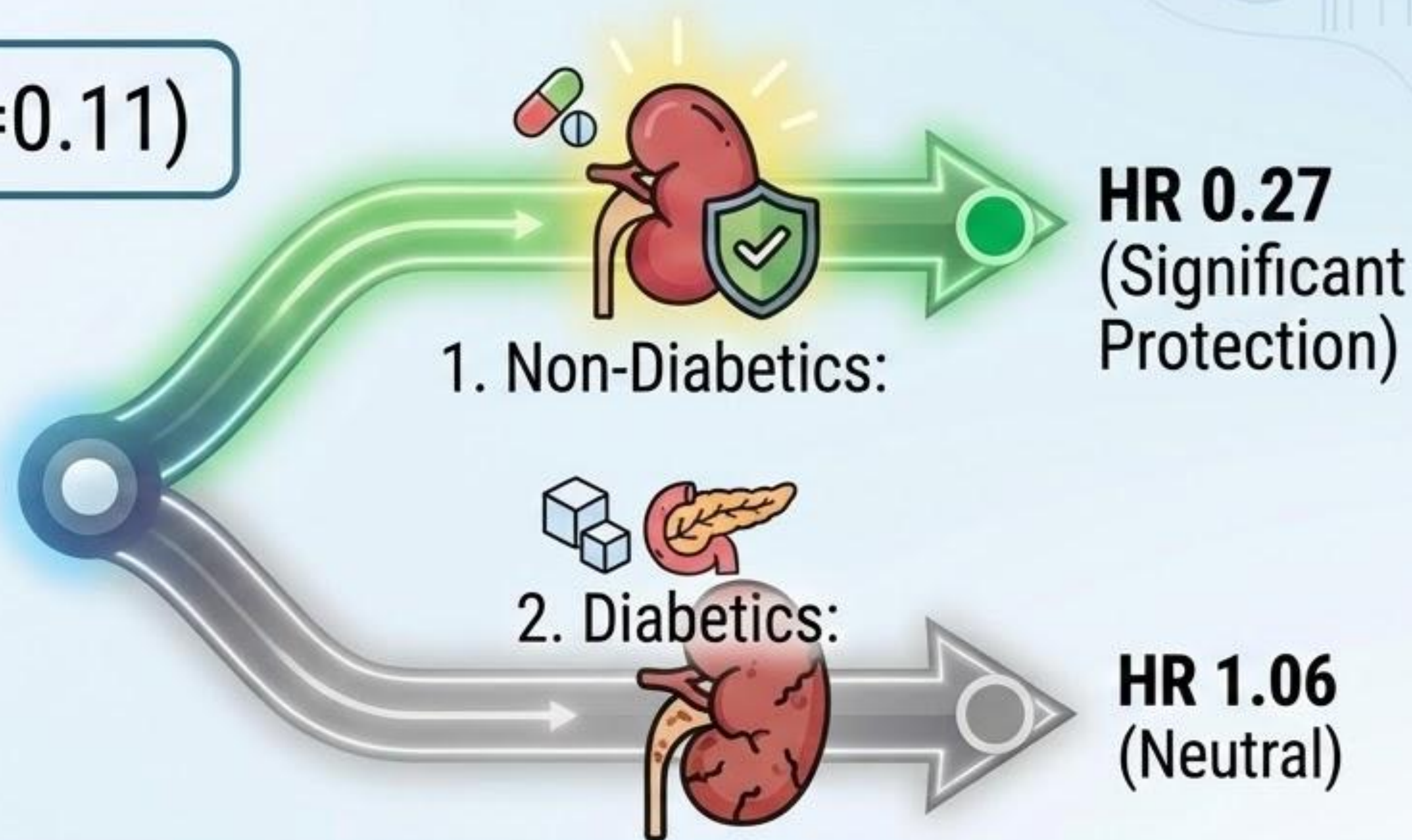
Hazard Ratio Subgroup Analysis for RRT required in 1 year

Subgroup_Level	MDT_n	Std_n	HR 95% CI	HR 95% CI	p_interaction
Overall	16/131	26/130		0.61 (0.33-1.13)	
Age Group					0.857
< 60 Years	2/38	4/37		0.53 (0.10-2.90)	
≥ 60 Years	14/93	22/93		0.61 (0.31-1.20)	
Sex					0.210
Female	5/53	12/48		0.37 (0.13-1.06)	
Male	11/78	14/82		0.84 (0.38-1.85)	
Diabetes Mellitus					0.042
No	4/74	12/65		0.27 (0.09-0.85)	
Yes	12/57	14/65		1.06 (0.49-2.29)	
Hypertension					0.277
No	3/54	7/41		0.33 (0.09-1.28)	
Yes	13/77	19/89		0.78 (0.38-1.57)	
Gout					0.453
No	13/122	22/117		0.56 (0.28-1.12)	
Yes	3/9	4/13		1.07 (0.24-4.80)	

RRT Requirement & Diabetes Stratification

Overall RRT HR: **0.61** ($p=0.11$)

Diabetes Stratification
(P-interaction = 0.042)

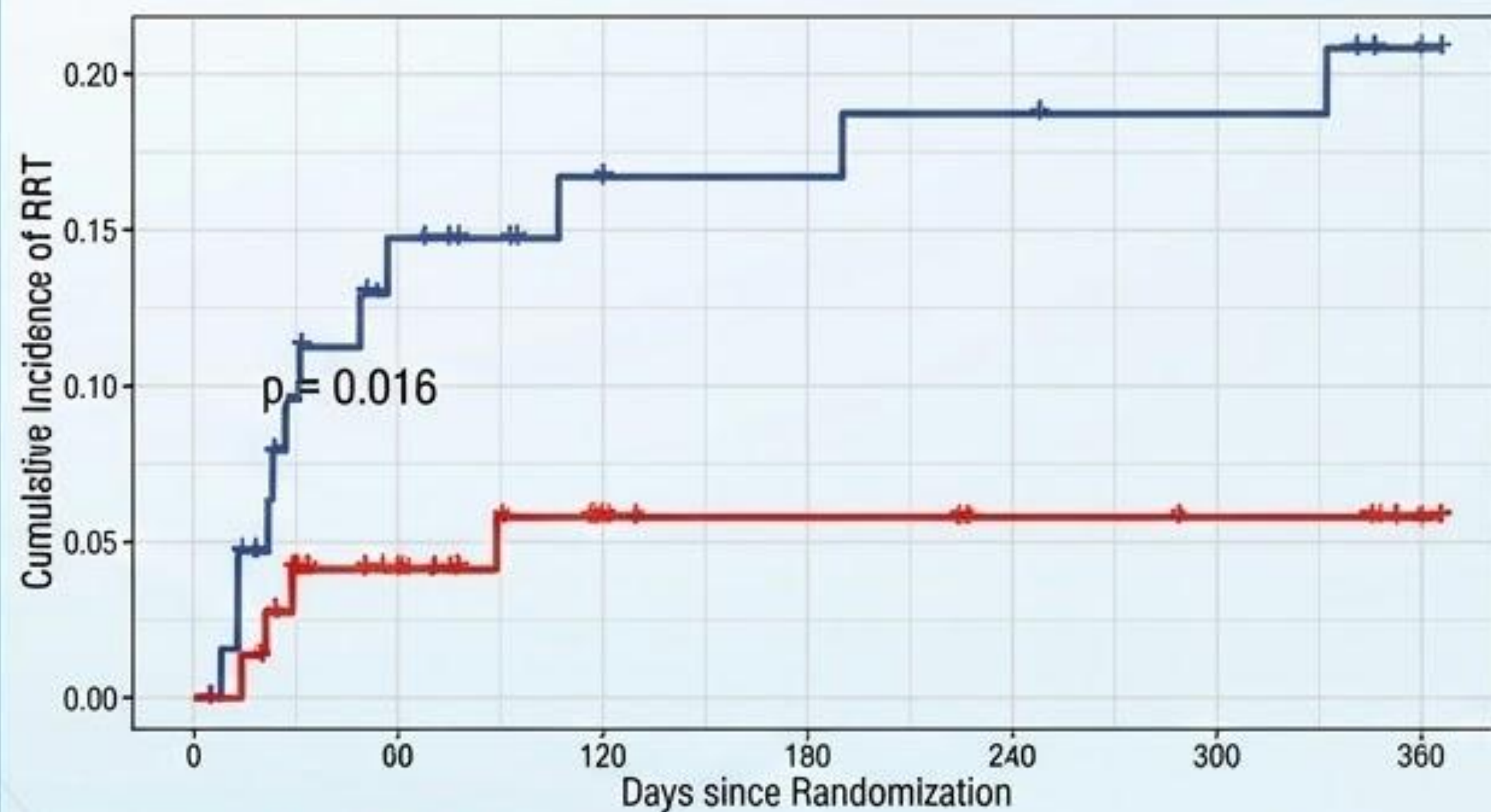


Key Point: Non-diabetic kidneys appear more 'Salvageable' with MDT.

Subgroup Analysis for RRT outcome at 1 year

Diabetes: No

Strata — Standard — MDT

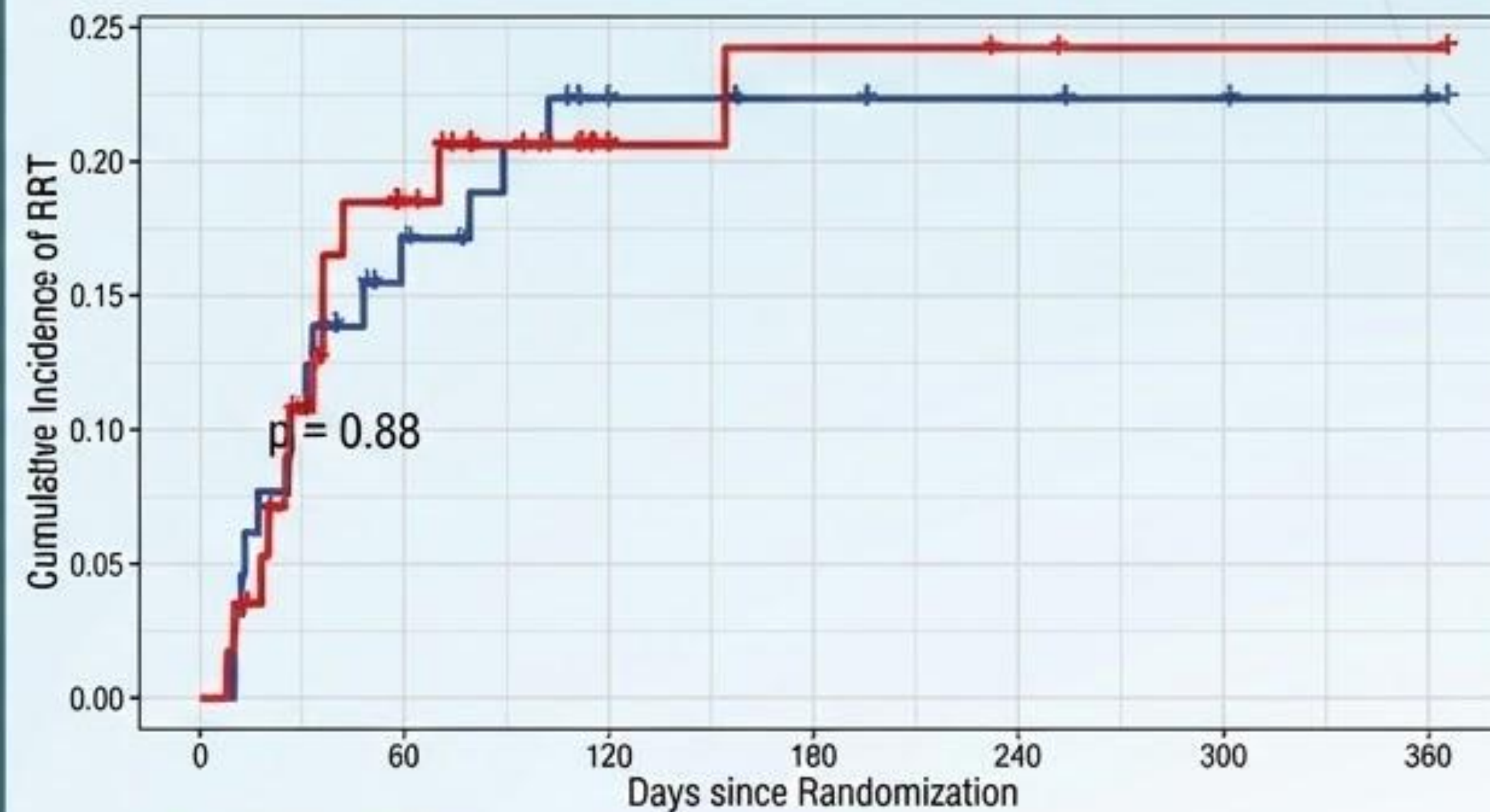


Number at risk

Strata		Days since Randomization						
		0	60	120	180	240	300	360
Standard	Standard	65	48	42	41	40	39	36
	MDT	74	62	53	47	45	44	41

Diabetes: Yes

Strata — Standard — MDT



Number at risk

Strata		Days since Randomization						
		0	60	120	180	240	300	360
Standard	Standard	65	50	42	40	39	38	37
	MDT	57	40	26	21	20	19	19

Conclusion & Clinical Implications

1. No Universal Application



MDT does not benefit mild (Stage 1) AKD.

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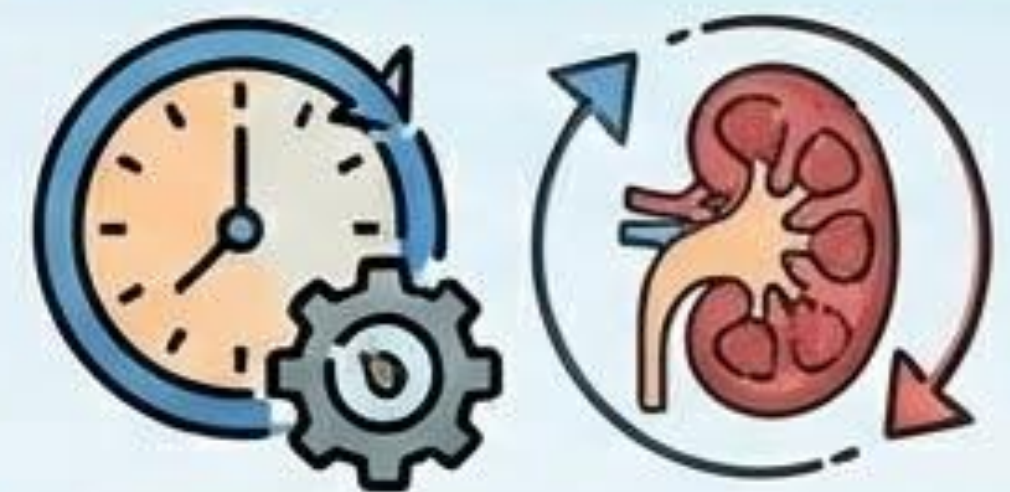
2. Target High-Risk Patients



Prioritize AKD Stage 3 and Non-Diabetic patients.

Prioritize AKD Stage 3 and Non-Diabetic patients.

3. Duration Matters



Structural benefits manifest at 1 Year (The Lag Effect).

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Acknowledgments

- The ISACC Study Group
- Taipei Medical University Shuang Ho Hospital
- All participating patients and families

Thank You for Your Attention.

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