

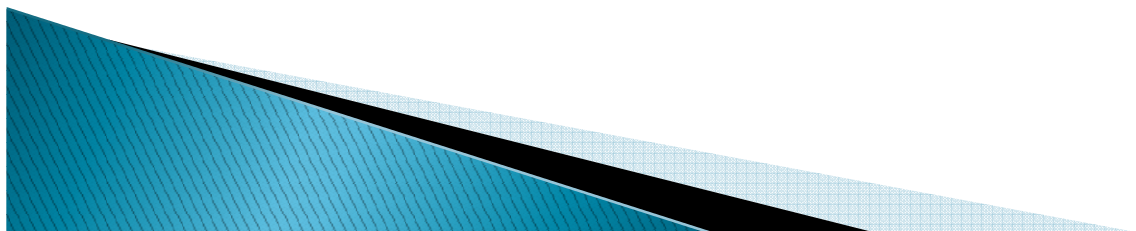
Effectiveness of combination
Prednisone-Tacrolimus compared
with Prednisone -Cyclosporine in
treatment Steroid-Resistant
Nephrotic Syndrome



Dra. Irma Esther del Moral Espinosa
Nefrología Pediátrica
Hospital Infantil de México Federico Gómez
drairma.nefroped@gmail.com

INTRODUCTION

- ▶ Many children with idiopathic nephrotic syndrome initially respond to steroid therapy, but patients with frequent relapses, steroid dependency or resistance to steroid therapy require alternative treatment.



INTRODUCTION

- ▶ Cyclosporine A is usually effective.
- ▶ Tacrolimus reduce side effects.

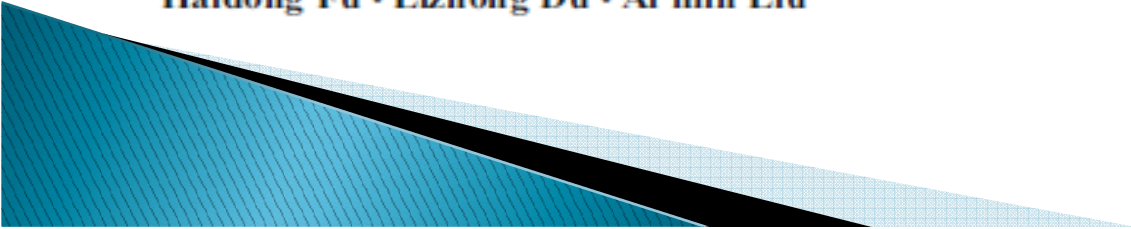
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ORIGINAL ARTICLE

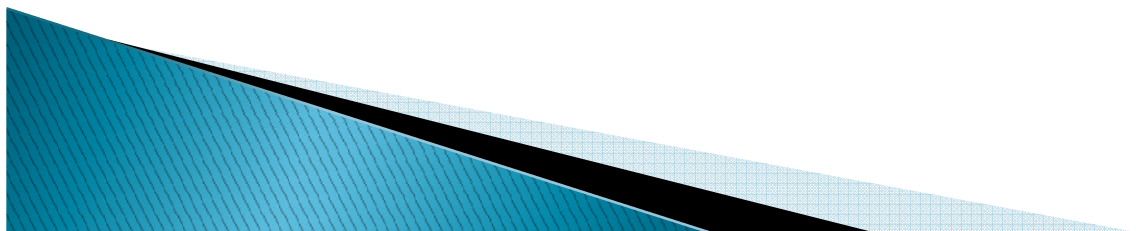
Treatment of tacrolimus or cyclosporine A in children with idiopathic nephrotic syndrome

Wenjing Wang • Yonghui Xia • Jianhua Mao •
Yifang Chen • Dayan Wang • Huijun Shen •
Haidong Fu • Lizhong Du • Ai'min Liu



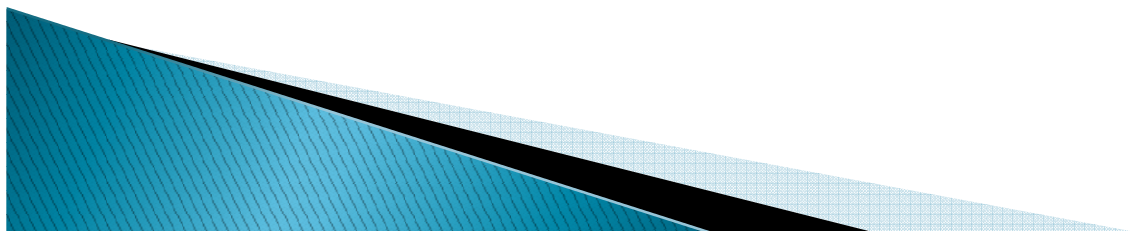
INTRODUCTION

- ▶ Most children with idiopathic nephrotic syndrome(NS) usually show in the renal biopsy minimal change disease (MCD) and responding to treatment with steroids.
- ▶ However, 5% present steroid-resistant nephrotic syndrome(SRNS) with the presence of focal segmental glomerulosclerosis (FSGS).



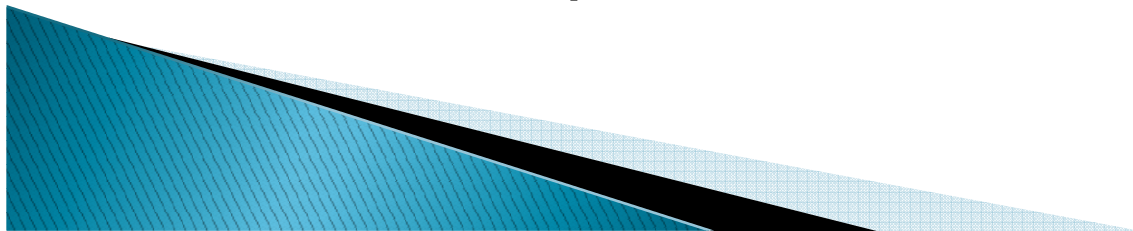
OBJECTIVE

- ▶ Demonstrate treatment with Prednisone (PDN) and Tacrolimus (FK) in pediatric patients with SRNS for a period of 12 months having greater frequency of complete or partial remissions in relation to the standard treatment with prednisone and Cyclosporine (CyA).



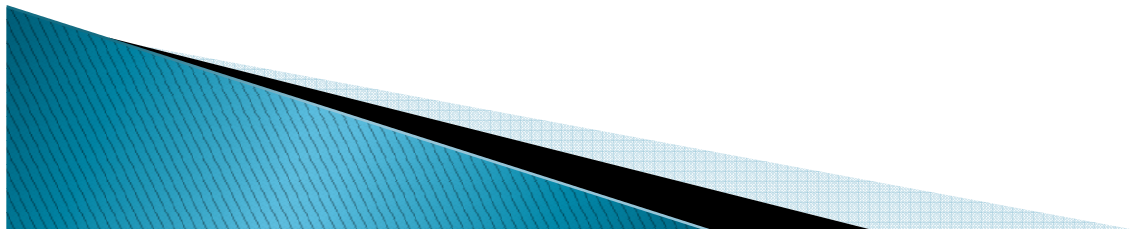
MATERIAL AND METHODS

- ▶ Comparative, multicenter randomized clinical trial was conducted in children with SRNS, approved by Investigation and Ethics Committees.
- ▶ Both groups received PDN 60mg/m²/day, during 1 month continued by 30mg/m²/day each/48h. for 5 months.
- ▶ Inclusion criteria: SRNS, normal GFR, treatment previous PDN only.



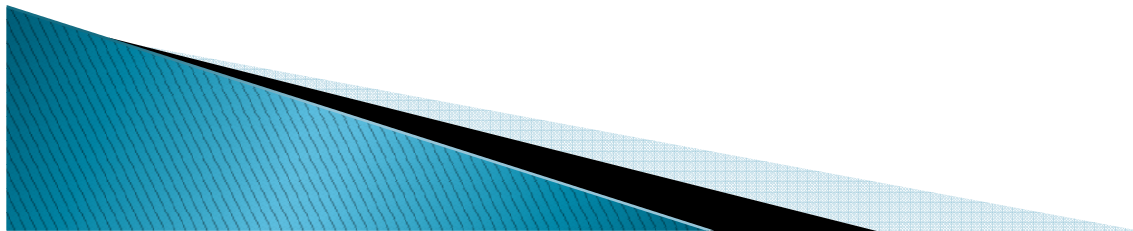
MATERIAL AND METHODS

- ▶ Group I receive CyA 5mg/kg/day in two doses for 12 month. Through levels 100–200 ng/ml.
- ▶ Group II receive FK 0.10mg/Kg/day in two doses for 12 months. Through levels 5–10 ng/ml. Renal biopsy at beginning of treatment and control at 12 months.
- ▶ Cholesterol, albumin and serum creatinine, glomerular filtration rate, proteinuria were determinated in both groups



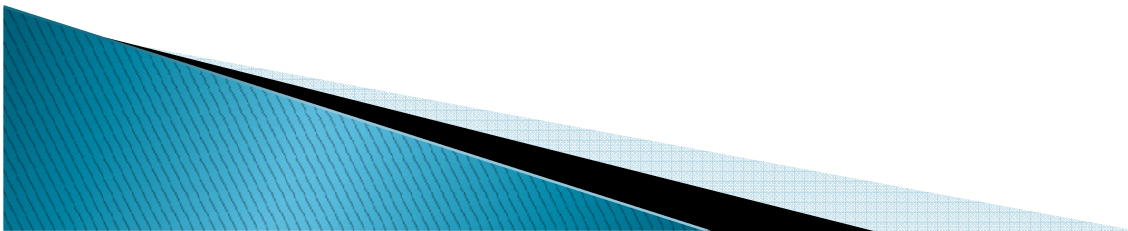
MATERIAL AND METHODS

- ▶ Group II receive FK 0.10mg/Kg/day in two doses for 12 months. Through levels 5–10 ng/ml.
- ▶ Renal biopsy at beginning of treatment and control at 12 months. Cholesterol, albumin and serum creatinine, glomerular filtration rate, proteinuria were determined in both groups



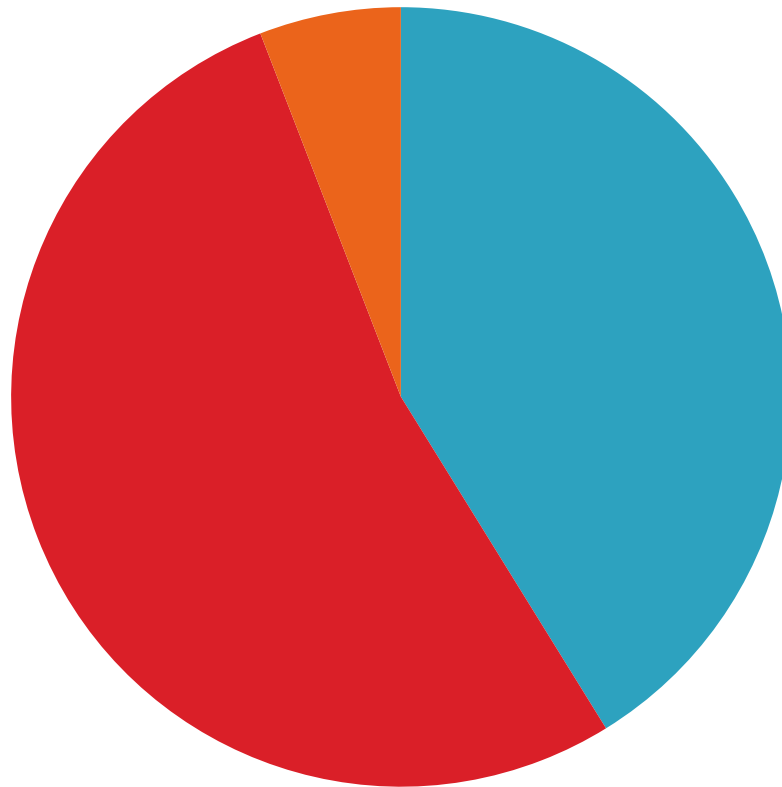
MATERIAL AND METHODS

- Complete remission: disappearance of clinical symptoms and negative test for urine protein.
- Partial remission: reduce of proteinuria 4.1 – 40mgm₂BSA
- No response: without clinical improvement within 6 months of therapeutic levels of CyA and FK.

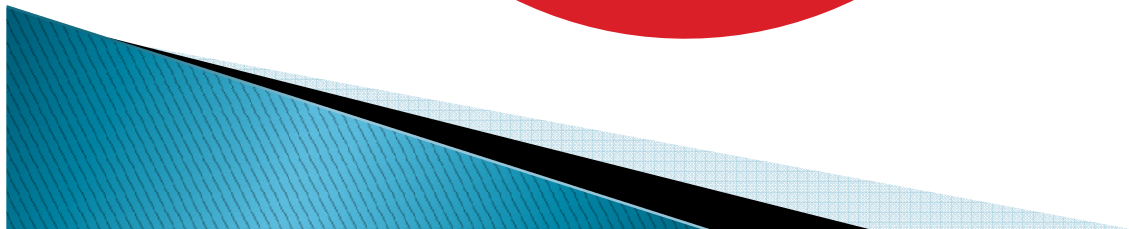


BIOPSY DIAGNOSIS

FIRST BIOPSY

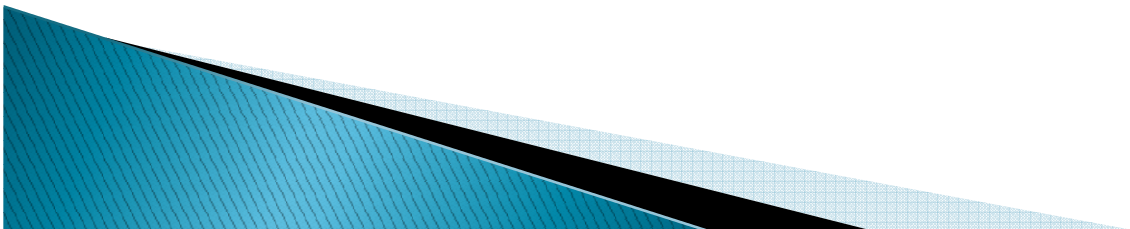


- focal segmental glomerulosclerosis
FK 4/CyA 5
- Minimal changes
FK3/CyA 4
- Diffuse mesangial proliferation
FK1 /
CyA 0



RESULTS

- ▶ Results: 20 patients were included, 10 in Group I and 10 in Group II with follow-up of 8 years. 9 and 7 .



RESULTS

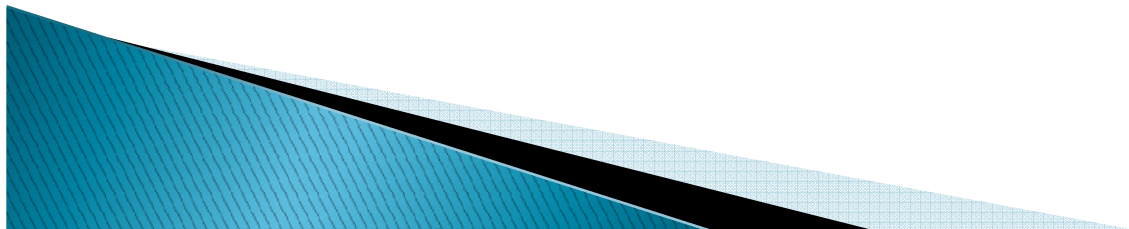
Demographic characteristics	CyA Group I	FK Group II	p value
Age of onset	7.46 \pm 4.5	8.3 \pm 4.8	0.62
Gender male/female	6/3	3/ 4	0.68
24 h urinary protein excretion(g)	3.71 \pm 1.64	4.85 \pm 2.57	0.007
Serum cholesterol mg/dl	345 \pm 98	386 \pm 110	0.16
Serum triglycerides mg/dl	398 \pm 104	376 \pm 102	0.16
Serum creatinine mg/dl	0.45 \pm 0.23	0.48 \pm 0.28	0.39
eGFR Schwartz ml/min	128 \pm 46	138 \pm 34	0.52

RESULTS

Time of treatment Answer in weeks	Remision type	PDN y CyA Group I	PDN y FK Group II
2	Complete	14.2 (1 / 9)	28.5 (2 / 7)
12	Complete	28.5 (2 / 9)	42.85 (3 / 7)
20	Complete	14.2 (1 / 9)	14.28 (1 / 7)
36-52	Complete	14.2 (1 / 9)	0 (0 / 7)
12	Parcial	14.2 (1 / 9)	0 (0 / 7)
	No response	14.2 (1 / 9)	14.28 (1 / 7)

55.5 %

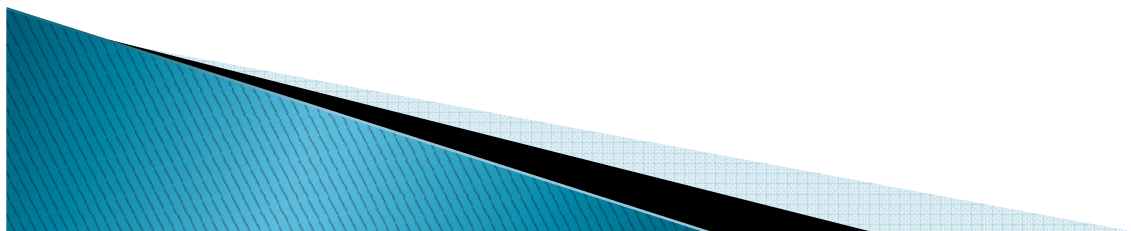
85.7 %



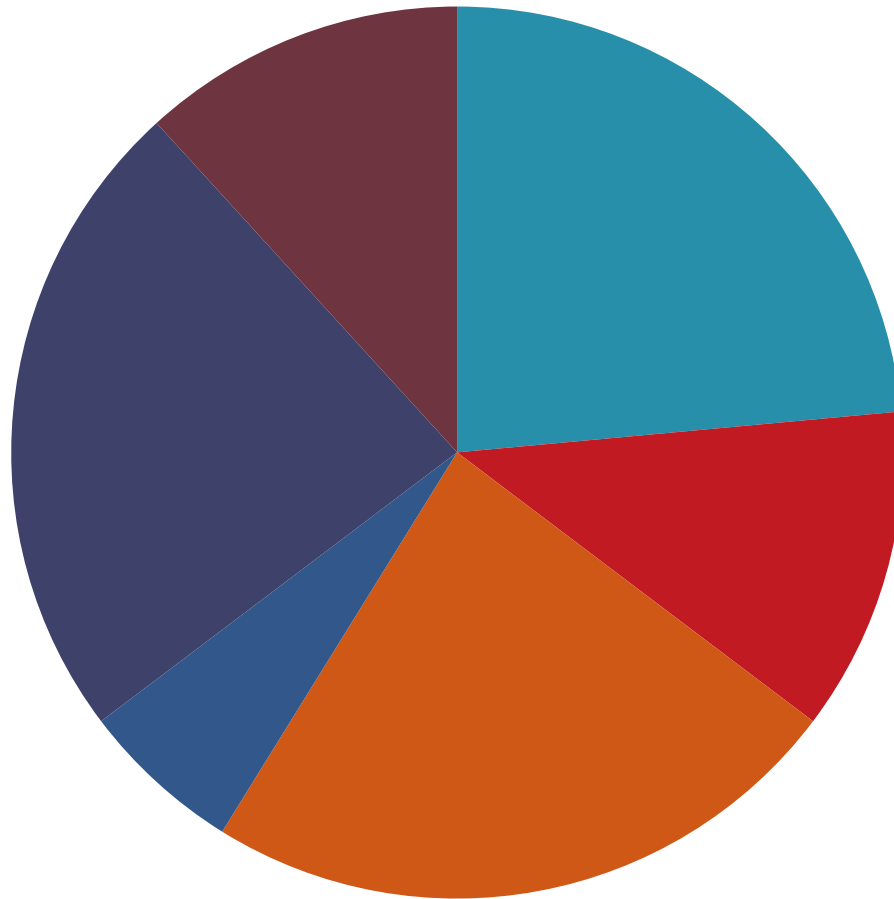
RESULTS

- ▶ Secondary hypertension was present in 71.42% (6 / 9) for group I and 25% (2 / 7) for group II.
- ▶ Relapses

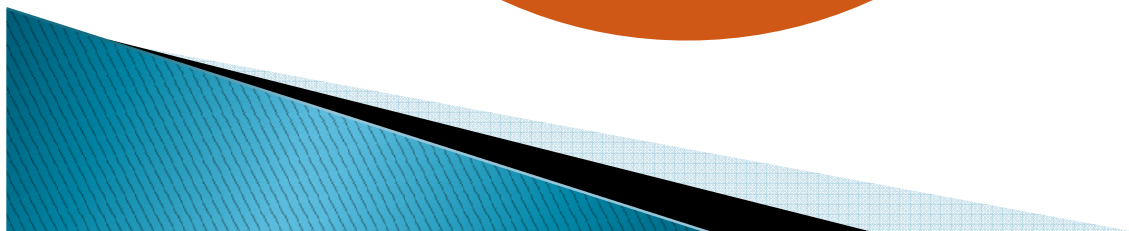
PDN/FK (4/7)	PDN/CyA (5/9)
24 months (\pm 8 months)	22.8 months (\pm 12)



BIOPSY AFTER ONE YEAR OF TX



- FOCAL SEGMENTAL GLOMERULOSCLEROS IS Fk 3/CyA 1
- FOCAL SEGMENTAL GLOMERULOSCLEROS IS TIN Fk 1/CyA 1
- MINIMAL CHANGES FK 2/ CyA2

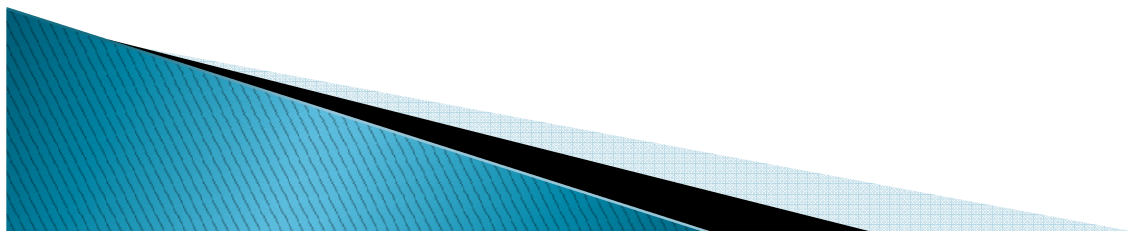


10 YEARS later

Demographic characteristics	CyA	FK	p value
Age of onset	16.46 \pm 4.5	15.3 \pm 4.8	0.62
Gender male/female	6/3	3/ 4	0.68
24 h urinary protein excretion(g)	1.71 \pm 1.64	2.85 \pm 2.57	0.007
Serum cholesterol mg/dl	205 \pm 68	126 \pm 110	0.16
Serum triglycerides mg/dl	194 \pm 64	206 \pm 61	0.16
Serum creatinine mg/dl	0.68 \pm 0.23	0.69 \pm 0.28	0.39
eGFR Schwartz ml/min	128 \pm 46	138 \pm 34	0.52

CONCLUSION

- ▶ In pediatric patients with SRNS, the treatment FK-PDN had a greater percentage of complete remission than CyA-PDN treatment and lower incidence of hypertension and nephrotoxicity.



Aknowledgments

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