



Nephrology in Andhra Pradesh

Abstract

Nephrology emerged as a specialty in Andhra Pradesh during the 1970s and rapidly developed into a well-defined field by the 1990s. Key academic institutions like Osmania and Andhra Medical Colleges laid the groundwork for kidney care in the state. Autonomous institutes like NIMS and SVIMS became centers of excellence, complemented by the swift expansion of private hospitals offering high-quality care. The introduction of Rajiv Aarogyasri in 2007 revolutionized access to treatment for end-stage kidney disease patients through free hemodialysis in government hospitals. The Jeevandan initiative, started in 2010, centralized deceased donor organ allocation, leading Andhra Pradesh and Telangana to achieve the highest number of organ transplants in India. Training programs in nephrology are now producing skilled specialists nationwide. Despite ongoing challenges like Uddanam Nephropathy, initiatives such as government-provided RO water may improve public health, contributing to Sustainable Development Goals on health and sanitation. The state has made significant strides in kidney disease care and academic nephrology.

Keywords: *History of Nephrology, Nephrology in India*

Introduction

In 1980, Andhra Pradesh had eight medical colleges with teaching hospitals. Osmania Medical College, Hyderabad and Andhra Medical College, Visakhapatnam, were among the oldest and most influential. Specialties like cardiology and urology existed, but nephrology as a coherent clinical specialty was unknown. Kidney care services were dismal in the state until late 1970. The majority of people depend on government hospitals for their health needs. Kidney diseases went unrecognized because of a lack of awareness among the medical community, and patients went to various other centers for treatment.

Evolution of Nephrology as Specialty

The government permitted the establishment of a Nephrology Department in Osmania Medical College in 1978, with Dr. A. Gopal Kishan as head of the unit. The department had facilities for intermittent peritoneal and hemodialysis. This was the only government center in the state providing kidney care services until 1984. During this period, Dr. Rambhoopal and others started dialysis facilities in the private sector in Hyderabad.

In 1978, King George Hospital, Visakhapatnam, procured two Centry 2 hemodialysis (HD) machines for the treatment of a popular politician with chronic kidney disease (CKD). As there were no qualified nephrologists, the machines were left idle until 1984. Acute peritoneal dialysis was started by trained physicians in 1983. In 1985, I started HD in Visakhapatnam for the first time, both in the government and private sectors in Andhra Pradesh.

The nephrology department was started at Andhra Medical College in 1985 with Dr Girish Narayan and Dr TRR. Later in the next two decades, under the stewardship of Dr TRR, the embryonic unit expanded into a major department, catering to the needs of people in coastal Andhra Pradesh and Odisha. Nephrology services at Gandhi Medical College and Nizam's Institute of Medical Sciences were started in 1990 with Drs. BVR Murty and Neela Prasad. The department became a center of excellence. Sri Venkateswara Institute of Medical Sciences (SVIMS) started nephrology services in 1993 with Dr. K.V Dakshinamurthy.

Nephrology services in the private sector developed rapidly after 1990, with several corporate hospitals starting dialysis.

**Ravi Raju Tatapudi¹,
Prasad Gullipalli²,
Gopika Menon P J²**

¹Department of Nephrology, Apollo Hospitals, ²Department of Nephrology, Andhra Medical College, Maharani Peta, Visakhapatnam, Andhra Pradesh, India

Corresponding author:

Ravi Raju Tatapudi, Department of Nephrology, Apollo Hospitals, Visakhapatnam, Andhra Pradesh, India. E-mail: ravitatapudi@gmail.com

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Nephrologists trained outside the state joined these centers and provided services primarily to the affluent sections of the population. Increasingly, sophisticated dialysis machines were commissioned in corporate hospitals.

Regardless of these facilities, CKD care in the state was predominantly nondialytic. Inadequate personal finances and a lack of government policy for the treatment of end-stage kidney disease (ESKD) were the major hurdles to the widespread availability of RRT. Health insurance was in a primitive stage and RRT costs were borne by patients from their own resources. Maintenance HD was out of reach for common patients. Patients had to travel hundreds of kilometers to get HD. Nephrologists were available in 3 or 4 cities only.

Beginning of a New Era

The introduction of the Rajiv Aarogya Sri Community Health Insurance Scheme (RACHIS) by the state government in undivided Andhra Pradesh in 2007 was one of the biggest reforms in the health sector in India. This cashless insurance scheme opened access to private and corporate hospitals for people below the poverty line.

The real fruits of the scheme came within reach of every ESKD patient after the acceptance of the proposal made by one of us (TRR, as the Director of Medical Education in Andhra Pradesh) in 2009 to start HD across Andhra Pradesh in 11 government centers with 110 HD machines under a public-private partnership model. All 11 centers were commissioned in the next 10 months, and by 2010, free HD had become a reality in Andhra Pradesh. Renalin processing units for dialysers, single-use tubing, reverse osmosis treated water for the dialysis, and universal provision of erythropoietin were unique features. This was a giant leap in the history of HD in India, transforming the face of nephrology services in Andhra Pradesh. More centers were added, and by 2014, every mandal in AP had a dialysis facility, bringing dialysis to the doorstep of patients for the first time in India.

Kidney Transplantation

The first kidney transplantation in the state was done by the team of Dr. Sarbeshwar Saharia and Dr. Ram Bhoopal in 1981. A year later, in 1982, the first free kidney transplantation in any public sector hospital in the country was done at Osmania General Hospital. Kidney transplantation was started at Gandhi Hospital in 1999. Andhra Medical College/King George Hospital performed the first live donor kidney transplantation in 2001 (by Dr TRR and Team). SVIMS Tirupathi, started live donor kidney transplantations in 2004. No other government hospital had organ transplantation facilities until the division of the state.

Several private and corporate hospitals started performing living donor kidney transplants between 1990 and 2010.

Hyderabad was the only city with transplantation facilities in the Telangana region, whereas over ten centers in several cities in the Andhra region were performing kidney transplantations during this time.

The Transplantation of Human Organs Act (THOA) was enacted in 1994 by the Parliament and the government of Andhra Pradesh Assembly quickly passed the bill. THOA Act and Rules came into force in 1995. Deceased donor kidney transplantations were only sporadically happening in a few private facilities in Hyderabad until 2009.

In 2010 as DME, one of us (TRR) proposed a transparent equitable and centralized cadaver organ allocation program in the combined state of Andhra Pradesh, with the support of Mr. J. Satyanarayana, visionary Chief Secretary of HM & FW. They named it “Jeevandan Program” [Figure 1]. TRR was the first Chairman of the program, the first government-sponsored deceased donor organ allocation program in India and introduced the unique feature of NonTransplant Organ Harvesting Centers (NTOHC). A similar program started in Tamil Nadu at the same time. With Dr. Swarnalatha (NIMS) as the chief co-ordinator, this has become an active and popular program. The first deceased donor transplantation outside Hyderabad was done in Visakhapatnam in 2012. Subsequently, several private centers and SVIMS, Tirupati also started deceased donor transplantations.

Nephrology Education

The DM Nephrology course was started at Osmania Medical College in 1990, and later at Andhra Medical College, Gandhi Medical College, and NIMS, in 2002. No other college had a DM course till 2012.

New Andhra Pradesh (2014)

As Aarogyasri program continued, dialysis units were established all over the state [Table 1]. More than 85% of HD patients in Andhra Pradesh come under Aarogyasri. In 2017, SVIMS expanded the HD unit to a capacity of 100 machines under the stewardship of Dr. V. Siva Kumar and Dr. Ram. Chronic peritoneal dialysis (PD) slowly picked up



Figure 1: Jeevandan logo.

Table 1: Aarogyasri package prices

CKD ESRD initiation package includes complete workup including sonography and 2D ECHO and hemodialysis for 4 times, counseling and dietary advice	35,800/-
CKD MHD package includes hemodialysis for 20 sessions in a month with access	20,560/-
Access creation	10,262/-
Tunneled catheter insertion	30,000/-
Acute kidney injury	20,227/-
Nephrotic syndrome	17,333/-
Nephritic syndrome (acute glomerulonephritis)	26,702/-
CAPD catheter insertion	37,476/-
RPGN	40,200/-
Renal transplantation	2,56,000/-
Transplant medication for 6 months	94,072/-
Transplant related infection	50,200/-
Pensions	
CKD on MHD	10000/- per month
Medical management (Eligibility serum creatinine >5 mg, U/S small contracted kidneys)	5000/-
Post renal transplant	5000/-

CKD: chronic kidney disease, ESRD: end stage renal disease, ECHO: echocardiography, MHD: maintenance hemodialysis, CAPD: continuous ambulatory peritoneal dialysis, U/S: ultrasonographic, RPGN: rapidly progressive glomerulonephritis.

as the government started funding PD under Aarogyasri scheme. SVIMS started PD in a big way and is currently one of the largest PD centers in the country.

Kidney transplants are regularly performed at King George Hospital, SVIMS Hospital, and Guntur General Hospital. Narayana Medical College, NRI Medical College, and GEMS Medical College are the three private medical colleges with an active transplantation program. Transplantation centers have opened in several private hospitals all over the new AP, unlike in Telangana state, where there are no transplant centers outside Hyderabad.

The DM Nephrology course was started at Andhra Medical College 2002 (by Dr TRR). Presently, Andhra and Kurnool Medical Colleges, SVIMS and two private colleges (Narayana and NRI Medical College) have DM courses. Two corporate hospitals (Medicover and Care, both in Vizag) also have Diplomate of National Board courses. The Andhra Pradesh Society of Nephrology was started in 2015 [Table 2].

Contributions of Andhra Pradesh to Nephrology

An important contribution of the AMC Nephrology Department is discovering chronic kidney disease of unknown etiology (CKDu) in the Srikakulam district of coastal Andhra in the 1990s by TRR. He brought this to the

Table 2: Nephrology services in Andhra Pradesh 2015-2024

Number of hospitals providing kidney services	155
Number of nephrologists	130
Number of renal transplant centers	Deceased-47, NTOHC-9, Live- 63
Number and range of nephrology training programs	
DM nephrology	16
Andhra Medical College	4
NRI Medical College, Chinakakani	2
Narayana Medical College, Nellore	4
Kurnool Medical College	2
SVIMS Tirupathi	4
DNB nephrology	2
B.Sc Dialysis Technology	30
Nephrology students	
Total	54
Annual outgoing	18
Number of patients on dialysis	
Hemodialysis	6194 (4708 Nephroplus centres, 1486 Apollo HD centres)
Peritoneal dialysis	262
Number of transplanted patients	2955 (Live- 2498, Cadaver -457)

NTOHC- Nontransplant Organ Harvesting Centres, DM: Doctor of Medicine, NRI: NRI Medical college, SVIMS: Sri Venkateswara Institute of Medical Sciences, DNB: Diplomate of National Board, B.Sc: Bachelor of science HD: Hemodialysis

attention of the government, the public and the scientific community and named it "Uddanam Nephropathy", and presented at the World Congress of Nephrology 2013 in Hong Kong. It was highlighted in the World Health Organization Bulletin as well. The etiology of this chronic interstitial nephritis leading to CKD is still an enigma. The state government recognizes this public health problem. It recently set up a water treatment plant at 800 crores, supplying RO water to the 5 lakh population in the Uddanam region. A 100-bed hospital with dialysis and kidney transplantation facilities and a kidney research center were started in Palasa, a remote town in the Uddanam region.

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Conflicts of interest

There are no conflicts of interest.