



Nephrology Services in Odisha

Abstract

Odisha, located on the east coast of India covers 155,707 sq. km and has a population of approximately 40 million, primarily residing in rural areas. Despite its wealth in water, forests, and minerals, Odisha struggles with poverty and is impacted by frequent natural disasters such as droughts and cyclones. The prevalence of tropical diseases such as malaria and cholera is high, alongside inherited disorders such as sickle cell disease. The state has developed nephrology services since 1960s. Currently, about 900 dialysis machines operate across Odisha. Chronic kidney disease of unknown etiology remains a critical issue, particularly in areas such as Narsinghpur. Efforts are ongoing to improve healthcare infrastructure and research to address these challenges effectively.

Keywords: Nephrology, Odisha, Education

Introduction

The State of Odisha is situated on the east coast of India and is spread over an area of 1,55,707 sq. km with a population of about 4 crores. It has an average annual rainfall of 1482 mm and a forest cover of 37%. Nature has blessed Odisha with rich natural resources of water, forests, and minerals (Iron, Coal, Bauxite, Manganese, etc.). Agriculture is the main source of livelihood, and people live mostly in rural areas. Industries like steel, aluminum, and others have come up in recent times. But the state remains poor amidst plenty due to drought, flood, cyclone, and associated epidemics of disease. Poverty, illiteracy, and superstitions are inherent problems of the state. Tropical diseases such as diarrhea, cholera, malaria, filaria, leprosy, tuberculosis, scabies, and protein energy malnutrition are common. Inherited disorders such as hemoglobinopathies and sickle cell disease are common in Western Odisha. Snake envenomation (mostly Viper and Krait) is frequently encountered in the coastal districts. Obstetrical hazards, especially in inaccessible remote and interior places, pose a threat to the life of the mother and the babies. At the same time, the burden of noncommunicable diseases such as diabetes mellitus, hypertension, heart failure, and cardiovascular disease has been growing in recent years.

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Nephrology in Odisha

The nucleus of the nephrology services in the State can be traced back to 1962–63 when an artificial kidney machine (KOLFF Type) was installed at Ispat General Hospital, under Steel Authority of India, Rourkela but was used rarely due to the lack of expertise. In 1972, Dr. G. C. Das and Dr A. C. Mahakur were sent by the Government of Odisha for D.M. course at the Postgraduate Institute of Medical Education and Research, Chandigarh. Both returned to the State services after qualifying and laid the foundation of programs in the public sector. Currently, around 40 nephrologists are serving the people of Odisha, most based in Cuttack and Bhubaneswar.¹

Dialysis Services

Peritoneal dialysis was the only dialysis modality available in the public sector for a long time as hemodialysis (HD) was thought to be very costly. In 1975, Dr. A.C. Mahakur was able to convince the then Director of Medical Education and Training, Prof. Sukumar Das, to start a hemodialysis unit at MKCG Medical College Hospital, Berhampur, with an improvised setup at an initial cost of Rs. 30,000. A Kiil dialysis machine, along with a cuprophane dialysis membrane, was imported from the UK. The rest of the dialysis accessories were improvised with locally available materials.

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The dialysis fluid was locally prepared and it was pumped with the help of Tulu pump to a reservoir at a height of about 20 feet from where the fluid was drained to the machine by gravity.

Vascular access made by AV shunts were created by the Urology Department headed by Prof. S.N. Panda. The first case treated with HD was a patient of filarial septicemia with acute kidney injury (AKI). The second case was from aviation research center near Cuttack who was airlifted to Berhampur by helicopter. He was suffering from AKI due to falciparum malaria.

Prof. G.C. Das and Prof. S.K. Palit started dialysis units at SCB Medical College, Cuttack and VSS medical, Burla in 1976 and 1979, respectively. In the private sector, only two dialysis machines were available at Cuttack. Subsequently, Rourkela Steel Plant Hospital procured new machines and started operating regularly under Dr. T.K. Bose. In the late nineties, different corporate hospitals in the state started dialysis programs. Later, the Government of Odisha started free dialysis programs in 27 district headquarter hospitals, three medical colleges, and capital hospital in Bhubaneswar. One dialysis unit was established in a community health center in Narsinghpur block of Cuttack district. Incidentally, this area is one of the CKD hotspots of India having very high incidence of CKD. This was the first rural dialysis units established by government initiatives. Recently, the service was extended to 15 subdivisional hospitals. Currently, around 900 dialysis machines are providing dialysis services in Odisha. The usual practice is twice a week dialysis, with few patients receiving thrice a week. HD is provided free at point of care in government hospitals and those empanelled in insurance schemes. Chronic peritoneal dialysis program is limited to a few centers, and few patients are on this therapy. PD catheter is placed surgically. The service is provided free of charge in government hospitals.

Transplant Program

The first kidney transplant was done at VSS Medical College, Burla in 1985 under the care of Prof. S.K. Palit, Prof. L.K. Sahu, and Prof. D Meher. But the program could not be continued due to a weak infrastructure. The first successful kidney transplant was done at Kalinga Hospital, Bhubaneswar in 2002 by Prof. A.C. Mahakur and his team. Prof. A.P. Pandey (Retd. Prof. of CMC, Vellore) was the surgeon. SCB Medical College started transplant program in 2013 under Prof. S.B. Rout, Prof. C.R. Kar, and Prof. D. Hota. Prof. Mukut Minz and his team from PGI Chandigarh with the local team performed the surgery. Deceased donor transplant has also started recently, but the progress has been slow. Only one HLA lab is available in the private sector. Currently, 10 centers are licensed for transplantation in Odisha.

Renal Pathology

There is a shortage of trained renal pathologists in the state though renal biopsy is being performed regularly by the nephrologists, which is sent to private centers outside the state for interpretation.

Nephrology Education

Kalinga Hospital under Prof. A.C. Mahakur was recognized for two DNB seats in Nephrology in 2012. DM program in SCB Medical College was started in 2013. Currently, SCB, SUM, KIMS, and AIIMS are running DM programs with four, two, one, and two seats, respectively, and Apollo Hospital with two seats.¹ The data of Odisha nephrology is given in Table 1.

Odisha Nephrology Forum

The Odisha Nephrology forum was started in 2003 at the initiative and encouragement by Prof. S.C. Das. The society aimed to create a common platform and meeting place for all nephrologists in Odisha and to exchange scientific ideas and recent developments in nephrology with the general physicians of the state.

CKD of unknown etiology in Odisha

Odisha is one of the hotspots of CKD(u) in India. Narsinghpur block of Cuttack district and some areas of Nayagarh and Dhenkanal districts have high incidence of CKD. In Narasinghpur area, the prevalence of CKD is 15%.

Clinically, the patients do not have hypertension or edema. Males are more affected than females. There are no industries in the area. The government of Odisha has

Table 1: Nephrology data of Odisha

No. of hospitals providing kidney services	280
No. of Nephrologist	41
No. of transplant centres	10
No. of institutes providing DM course	4
No. of institutes providing DNB course	1
Total no. of nephrology trainees	22
No. of centres with intervention nephrology	12
No. of patients on incentre HD	9500
No. of patients on home HD	Nil
No. of patients on PD	60
No. of transplants till date	1768
No. of deceased transplants	31
No. of transplants annually	200
Kidney disease registry	Nil

DM: Doctorate of medicine, DNB: Diplomate of national board, HD: Hemodialysis, PD: Peritoneal dialysis.

done an epidemiological study in Narsinghpur block. The villages close to the mountains have higher incidence of CKD. The analysis of water and soil sample did not detect any environmental toxins such as heavy metals. A few water samples revealed fluoride excess. The sources of drinking water in the area are deep tubewells that draw water from underground sources. Although no toxins could be detected, the government has started drinking water project from surface water of Mahanadi river. Further

research is required to find the cause so that preventive action can be taken.

Conflicts of interest

There are no conflicts of interest.

Reference

1. Prof. A. C. Mahakur. History of Nephrology in India with reference to Odisha pp56-61 in golden jubilee souvenir of indian society of nephrology.