

Perspective

An Assessment and Update of Pakistan Kidney and Liver Institute and Research Centre

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Abstract

Pakistan has one of the highest prevalence of liver and kidney diseases which are responsible for a high level of morbidity and mortality. In order to combat the increasing number of these diseases, the government of Pakistan had to develop healthcare infrastructure. Several organizations have come forward to help the government. PKLI & RC (Pakistan Kidney and Liver Institute and Research Centre) is one such partnership striving for a disease-free Pakistan. PKLI & RC is a semi-government project that aims to provide free of cost state-of-the-art treatment to the financially stressed people suffering from liver and kidney disorders. Moreover, PKLI & RC provides wide opportunities for research and education to post-graduates and undergraduates. This review article provides a key insight into the aims and background of this institute as well as highlights its performance in the past years. It is clear from the collected data that PKLI & RC is playing a pivotal role in the treatment of liver and kidney diseases along with limiting their spread.

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Introduction

The human health has always been a parameter of a nation's growth and progress. Pakistan, already a low-income country, distressed by a poorly resourced and over-burdened healthcare system, has one of the highest prevalence of Hepatitis C in the world (6%), followed by Egypt (>14%), Mongolia and Uzbekistan (10%)¹. Liver disorders are the 11th leading cause of death in Pakistan, whereas kidney diseases taking the 12th spot.² To add further to the distress, the healthcare system of Pakistan has never been able to stand on its feet, owing to severe scarcity of resources, their inaccessibility, functional inefficiency and structural fragmentation³. Combating this deadly combination of disease and poverty demands extraordinary actions and efforts.

The multiplicity of some of these difficult challenges led to a promising collaboration of the government and a charitable healthcare organisation of Pakistan

in the form of "Pakistan Kidney and Liver Institute and Research Centre" on January 5, 2015 under PKLI Act 2014. The hospital was inaugurated in December 25, 2017 with outpatient services while the building and infra structure was still incomplete. Situated in Lahore Knowledge Park, DHA Phase 6, this state-of-the-art hospital, provides a wide range of services including the inpatient and outpatient departments for urology, nephrology, gastroenterology and hepatology, hepatobiliary surgery, kidney transplant, and liver transplant. The hospital has also extended the support services beyond liver and kidney to departments like infectious diseases, critical care, pulmonology, psychiatry, internal medicine, and anaesthesiology.

With these services on board, PKLI & RC aims to address the dual burden of poverty and disease, providing relief to the non-affording patients as well as serving those who can afford to pay for treatment².

Objectives:

PKLI aims to provide quality treatment to liver and kidney patients who are financially struggling, thereby reducing the burden of patients on our already overburdened health system. PKLI also ensures vast opportunities for undergraduate and post graduate students to conduct research activities and obtain practical training. Prevention of disease by developing and implementing appropriate strategies is also one of the agendas of PKLI. Moreover, PKLI can provide appropriate medical services to financially resourceful individuals who can pay for their treatment.

Background:

In order to address the ever-growing problem of hepatitis spread in Pakistan, Hepatitis Prevention & Treatment program was initiated by the Specialized Healthcare & Medical Education department in collaboration with Pakistan Kidney and Liver institute (PKLI) in 2017. At the time, 12 Hepatitis Prevention and Treatment Clinics (HPTC) were completed in District Headquarter Hospitals (DHQs) of different cities within the first one hundred days. These centres can provide filtration of patients for referral by screening for hepatitis⁴. Later on, more centres were added, and numbers went up to 23 satellite clinics.

HPTC Lahore is considered the epicentre for hepatitis prevention and control. It has been providing prevention, screening and treatment to about 300 patients per day since its construction in March 2017.

World Health Organization:

The outstanding services of PKLI & RC to the deprived and financially destitute people of Pakistan is recognized and appreciated by the World Health Organization⁵. PKLI & RC is playing a pivotal role in treating and preventing kidney and liver diseases in Pakistan.

Composition of Hospital Complex:

The hospital complex is built on a 50-acre land and will ultimately consist of hospital building (patient towers, emergency theatres, operation floor, etc.), university, mosque, energy centre, nursery, male and female dormitories, residential area, PKLI bazaar and industrial unit.

Proposed Infrastructure:

The construction of the hospital was divided into three phases with first 100 beds to be inaugurated in December 2017. The scope of hospital includes healthcare, research labs, a university for graduate and post graduate studies, residential facilities for patients, nurses and doctors, energy centre, nursery, retail and a mosque. In next phase, with current approved budget allocation, bed number will be increased to 470. PKLI will eventually be a facility with 800 beds (extendable to 1500 beds); a 100-bed emergency centre, a 100-bed intensive care unit (ICU), a 100 beds outpatient dialysis facility, a 500 beds in-patient facility, 20 operating rooms and 10 same day surgery suites.

PKLI & RC's Capacity Recapitulation:

With the completion of 470 beds the hospital will be fully functional. The total annual capacity (after 3 years of completion) to perform surgical and other procedures will be 23,100. This includes 300 for kidney transplant, 300 for liver transplant, 2400 for urological surgery, 1800 for hepatobiliary surgery, 300 for robotic surgery, 3600 for day-care surgery, 2400 for lithotripsy, 9600 for general endoscopy and 2400 for Endoscopic Retrograde Cholangiopancreatography (ERCP) procedure. Total dialysis capacity will be 69,600. Total in-patient capacity/patient beds days are 116,070 which is planned to be ramped up over two years.

Out-of-Package^a in-patient admissions are 12,180 whereas total OPD (Out Patient Department) consultations are 345,600 and total OPD procedure capacity is 24,000

In PKLI, total radiology testing capacity per annum (after 3 years of completion) will be 175,200. Total annual capacity, 14,400 for CT (Computerized Tomography), 2,800 for MRI (Magnetic Resonance Imaging) scan, 72,000 for ultrasound, 54000 for X-Rays, 1600 for fluoroscopy, 1,600 for nuclear medicine imaging, 2,400 for Positron Emission Tomography (PET) and 24,000 for fibro scan.

Pathological testing capacity per annum will be 4,134,000. Emergency room capacity will be 113,880 and capacity for emergency surgical procedures (off official hours) will be 680.

Current Status of Project:

As of November 2019, there are 75 indoor patients' rooms, 10+(18) ICU beds, 10 bedded emergency, 34+(27) dialysis stations, 2+(06) operation theatres and 34 OPD clinics functioning in future ER (Emergency Room) space.^b

There is a well-developed radiology and nuclear medicine department with CT/MRI/PET scans and an interventional radiology department. The pathology/labs (including immunology) are still being developed but near completion soon.

Activity Report of PKLI & RC:

Currently total OPD visits are 130,069, total in-patient admissions are 3,781, total pathological tests performed are 285,435, total pharmacology prescriptions are 62,942, total radiological procedures performed are 42,448, total nuclear medicine procedures are 428, total endoscopies performed are 4656 and total ERCPs are 148.

Total haemodialysis performed are 17,866, total urological procedures are 4,001, total surgical procedures performed are 1,794, total kidney transplants are 62 and total successful liver transplants are 4.

Comparison of PKLI & RC's activity of 2018 with 2019:

Total number of OPD visits increased from 38,678 in 2018 to 47,348 in 2019.

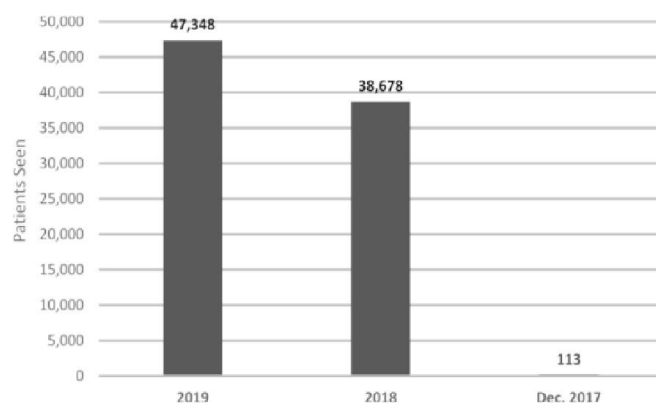


Figure 1: Comparison of Activity in OPD Visits

Haemodialysis treatment sessions increased from 4,098 in 2018 to 9,257 in 2019.

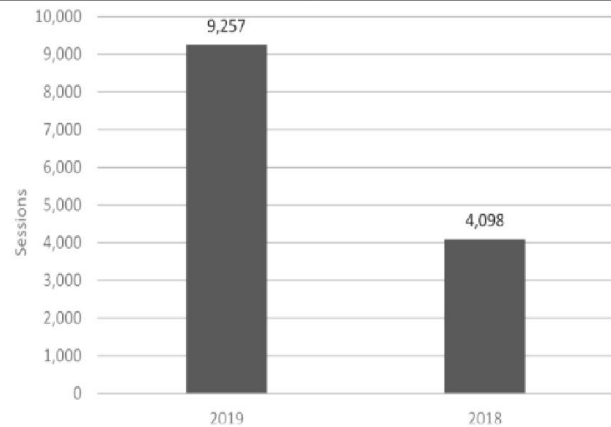


Figure 2: Comparison of Data in Haemodialysis

Total number of patients accommodated in ICU increased from 77 in 2018 to 210 in 2019.

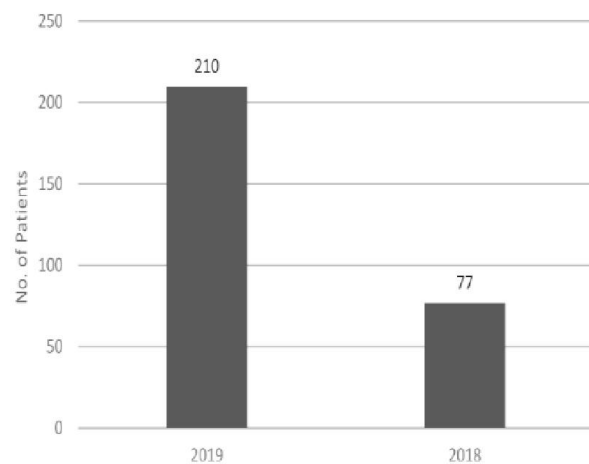


Figure 3: Comparison of Data for Numbers of Patients in ICU

Surgical procedures performed increased from 773 in 2018 to 899 in 2019.

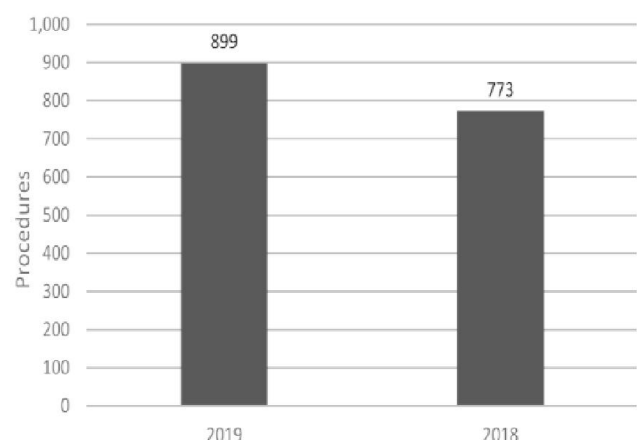


Figure 4: Comparison of Data for Surgical Procedures

Total number of laboratory tests performed increased from 82,317 in 2018 to 101,455 in 2019.

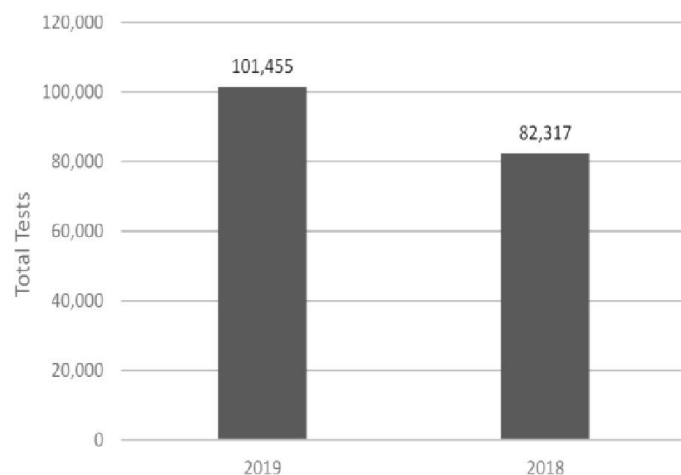


Figure 5: Comparison of Laboratory Tests

Total number of successful kidney transplants increased from 14 in 2018 to 31 in 2019.

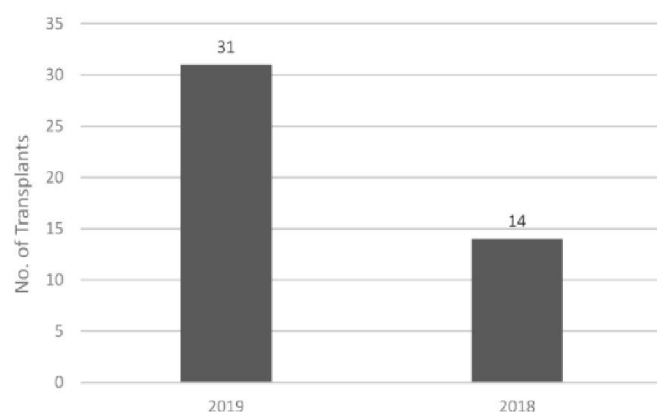


Figure 6: Comparison of Successful Kindy Transplants

Services at PKLI & RC:

PKLI serves as a quaternary referral centre making it a central hub for treating all kinds of liver and kidney disorders. Its service for the welfare of the people of Pakistan can make it a role model for health care in Pakistan.

Moreover, this institution has produced many experienced and specialized clinicians through its advanced fellowship and subspecialty training. PKLI & RC boasts a tier 3 advanced data centre which is helping Pakistani researchers determine the epidemiology of diseases so that better strategies can be employed to counter them properly.

PKLI & RC and Research Opportunities:

PKLI & RC aims at providing a promising platform for emerging researchers and fellows. The establishment of a state-of-the-art research lab under the supervision of renowned research scientists from all over the world is the ultimate goal where full support in terms of journals and electronic databases will be provided to the residents. Special focus will be laid on stem cell, cancer, stone, cytogenetics, molecular biology and bioethics research⁷.

PKLI and Educational Opportunities:

Through PKLI, undergraduate medical students, from all over Pakistan, USA and UK will be provided opportunities for rotations. Practical education including didactic teachings and hands on training will be ensured.

Post graduate residents in the fields of nephrology, hepatology, urology and transplantation will be inducted. Fellows from other fields will also be provided opportunities to rotate under this program in order to enhance their skills and broaden their horizons, under the supervision of skilled consultants⁸.

PKLI & the Punjab Government:

Apart from the financial encouragement by the government for PKLI for its services to the country, the government recognizes PKLI's role in combating these deadly diseases and appreciates its vision for a liver/kidney disease free Pakistan. The Government has shown ample support for the cause by regular visits of its functionaries to the facility⁶.

Conclusion:

Liver and kidney disorders remain two of the leading causes of morbidity and mortality throughout the world. In Pakistan, liver disorders are ranked the 11th, and kidney disorders the 12th leading cause of death. Pakistan Kidney and Liver Institute and Research Centre, established in 2015, aims to provide quality treatment to liver and kidney patients across the country thus playing its role in reducing the burden of these diseases on our struggling health care system. In addition, PKLI & RC also aims to provide first hand research opportunities to graduate and undergraduate students to help them obtain practical knowledge.

With 130,069 OPD visits, 3781 inpatient admissions, 62 successful kidney and 4 successful liver transplants so far, PKLI & RC aims to expand its network in the coming years and continue providing quality healthcare services to people belonging to all fields of life, irrespective of their cast, colour, creed, religion or socioeconomic status. Pakistan Kidney institute and Save Our Lives (SOULS) also work in collaboration with PKLI & RC, supporting the underprivileged patients, thus making sure quality healthcare services reach out to everyone in the country.

Notes:

- a. Out of package admissions are admissions for those conditions for which total cost of hospital admission is not determined. For example, liver transplant has a cost for total package. But admission with pneumonia of a transplanted patient would be out of package admission.
- b. The numbers in parenthesis indicate facilities near completion.

Salient Points:

- Liver and kidney diseases are 11th and 12th leading causes of death in Pakistan and disease burden is increasing rapidly.
- Pakistan government has launched an ambitious program of screening, diagnosing and treating hepatitis by establishing Hepatitis Prevention and Treatment Clinics at district levels.
- PKLI & RC is a visionary project aiming to deal with complex liver and kidney conditions by deploying current state of art technology. This institute is managed separately and independently of the Department of Health giving it a degree of freedom to act innovatively.
- PKLI & RC has a very dynamic educational and research component.

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