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Leading Article

Pediatric Nephrology in Bangladesh: Past, Present and Future

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The pediatric nephrology is the branch of medical science which deals with the kidney diseases in children along with the diagnosis, investigation and management of acute and chronic kidney diseases including the provision of dialysis and renal transplantation.[1] Moreover, pediatric nephrologists must have detailed knowledge of renal physiology like role of kidney in fluid and electrolyte balance, acid base balance, blood pressure control, and also about different renal pathological disorders.[2] So, to fulfill these goals the pediatric nephrologists require special training to treat the children with kidney diseases and disorders and helping the patients during transition to adult nephrologists and urologists.[3]

Until 2000, pediatric nephrology in respect of manpower development, improvement of service delivery, renal replacement therapy with hemodialysis, diversification of peritoneal dialysis with continuous ambulatory peritoneal dialysis (CAPD), and pediatric renal transplantation were not developed significantly in Bangladesh. It may be mentioned that intermitted peritoneal dialysis (IPD) was the only available form of renal replacement therapy for acute kidney injury patients due to hemolytic uremic syndrome and diarrheal diseases in the then Institute of Post Graduate Medicine & Research (IPGM&R) and sporadically in the Bangladesh institute of child health (BICH). Gradually scenario had been changed, Doctor of Medicine (MD) course on pediatric nephrology for pediatrician who had either FCPS, MD or MRCP degree on pediatrics was established under Bangabandhu Sheikh Mujib Medical University (BSMMU) in 2000. Later on, this traditional MD course was converted into 5 years residency course having two phases (phase A & phase B) in 2010. Another significant development occurred regarding development of pediatric nephrology as a separate department in 2005 under faculty of medicine in BSMMU to fulfill the long cherished desire of the pediatrician who wanted to build up their career as pediatric nephrologists. The establishment of separate department was also a milestone for speedy development of pediatric nephrology to provide better service. Though until 2000, BSMMU & BICH were the only referral centers in Bangladesh to address pediatric nephrology patients, but after 2000, National institute of kidney diseases and urology (NIKDU) was also added as referral hospital for pediatric nephrology patients.

Bangladesh is a country of more than160 million people and 40% (63 million) are under 19 years.[4] It is amazing that over the last three decades Bangladesh achieved tremendous success in reducing neonatal, infant and under five mortality rate even with this huge population and small health budget among south Asian countries.[5] But her success in prevention, early identification and diagnosis and timely referral of pediatric renal patients in appropriate centers are still far behind in compared to other regional countries. Since 2010, Bangladesh achieved gradually magnificent improvement in the field of management of nephritic syndrome, acute glomerulonephritis, vasculitis and fluid and electrolytes disorders as per guidelines prepared by the Pediatric Nephrology Society of Bangladesh (PNSB). Now a day in three tertiary centers of Dhaka city, renal biopsies are done by biopsy gun and in BSMMU it is guided by ultrasound to avoid failure. In a recent study of renal biopsy, revealed that 70-80% are steroid sensitive nephritic syndrome,10-12% are steroid resistant nephritic syndrome. Within last two decades the incidence of infection, diarrhea and sepsis related AKI declined due to widespread use of oral rehydration saline, treatment of sepsis, use of sanitary latrine, drinking of safe water, wide coverage of vitaminA supplementation and vaccination against vaccine preventable diseases to the children.[5]

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At present different modalities of renal replacement therapy (RRT) are provided in different medical colleges and institute of Bangladesh. Hemodialysis (HD), continuous ambulatory peritoneal dialysis (CAPD), along with previously practiced (IPD) are practicing in BICH, NIKDU, Dhaka medical college hospital(DMCH) and also private hospital like Square hospital etc. Pediatric nephrology department of BSMMU is the pioneer of pediatric renal transplantation for the end stage renal diseases (ESRD). From 2006-2018, eleven living related kidney transplantation (KT) were done, among them two KT patients died due to non-compliance of immuno-suppressive drugs and loss of regular follow up. KT is a feasible option of ESRD treatment but limited options best suited for Bangladesh. In context of number of pediatric renal transplantation Bangladesh is still behind India and Pakistan probably due to lack of information about facilities of pediatric KT in BSMMU both among parents and physicians, absence of referral system, lack of wide spread misinformation about pediatric KT, stringent organ transplant law of Bangladesh, lack of deceased donor transplant.[5,6] Cost of KT is much lower than other RRT, it is necessary to popularize KT program among ESRD patient. Pakistan successfully performed 475 renal transplantation in children below 18 years between 2006 to 2011.[7,8] Bangladesh parliament also promulgated laws to permit deceased donation in 2019.

In Bangladesh there is no national registry of pediatric renal diseases, that is why nation wise actual disease pattern is not known. But a small epidemiological study in four hospitals of Dhaka city observed that number of male patients (64.1%) were significantly more than female (35.8%) patients. Vast majority of the diseases were nephritic syndrome (76%) followed by CKD (6%) due to obstructive uropathy, rests were other types of renal diseases like acute glomerulonephritis (AGN), urinary tract infection (UTI), hydronephrosis (HDN).[7] Similar pattern of pediatric kidney diseases were also observed in Pakistan and India.[9-11] Histological variants of nephritic syndrome varied between Bangladesh, Pakistan and India. In Bangladesh mesangial proliferative glomeruo-nephritis was the commonest histological findings in glomerulonephritis, on the other hand in other two countries minimum change disease was the commonest findings.[5,11]

Both India and Pakistan have national registry of chronic kidney diseases in children, obstructive uropathy is the common cause of CKD in India.[12] On the other hand stone diseases is responsible for 20% CKD and 20% renal transplantation in children for ESRD in Pakistan.[13] Like Bangladesh, in other sub continental countries infection associated kidney diseases like AGN, AKI, UTI have reduced due to improvement of socio-economic condition, increased awareness among common people ,availability of treatment facilities.[4]

From 2000 to till date Bangladesh gradually progressing and developing in the field of pediatric nephrology in context of manpower development by creating 43 new posts in the government medical colleges, establishment of RRT facilities in medical colleges, overseas training for young pediatric nephrologists, academic activities by organizing and attending continued medical education(CME), international conference both at home and abroad. Since 2004, after establishment of PNSB it has given remarkable efforts to materialize all these developments of pediatric nephrology in Bangladesh. In 2004, PNSB had only six founding members, but within two decades number of members have been increased sixty with ratio of pediatric nephrologists to pediatric population of 18 years or less of approximately 1:1.1 million.[4] At present number of pediatric nephrologists in the country is quite inadequate according to pediatric population suffering from renal problems , but still a few of them are not able to tender their service to the renal patients due to lack of support from local authority and adequate infrastructure. In this regard, PNSB should come forward to mitigate all sorts of anomalies and discrimination which pediatric nephrologists are facing throughout the country with the help of ministry of health and family welfare.

In future Pediatric nephrology service should be established in all government medical colleges and private hospitals of Bangladesh with RRT and other services to meet the demand of the country. PNSB should start national renal registry with the help of government and donor agenciesto know the epidemiology of pediatric renal diseases in the country which is badly needed for planning to assess requirement analysis. Bangladesh is a small country with huge population living under poverty line needs such type of specialists who can treat both renal and non-renal diseases. So, in future pediatric post

graduate course and training may be modified keeping parity with other countries. Pediatric post graduate course must be organized in a multidisciplinary hospital; otherwise it will be fruitless and incomplete training.

In future, PNSB should arrange short term training program for upazila and district level doctors to serve the renal patients at primary level. It is the future dream of PNSB to develop BSMMU at a level as if International Pediatric Nephrology Association(IPNA) and interested students from regional countries choose BSMMU as their first choice to undertake post graduate fellowship training.

References:

1. Friedman A, Ehrich J, Chevaliem R, Jones S. A history of International Pediatric Nephrology Association (IPNA). Pediatric Nephrol 2012;27:695
2. Pediatric Nephrology level-3 pediatric sub specialty syllabus. RCPCH, August 2018. Available from: https://www.rcpch.ac.uk/sites/default/files/2018-03/paediatric_nephrology_syllabus_final.pdf [17.10.2020]
3. Kirpal S. Chugh. Five Decades of Indian Nephrology: A Personal Journey. American Journal of Kidney Diseases 2009; 54: 753-763
4. Roy RR. Bangladesh paradox of pediatric end stage renal disease. PaedNeph J Bang. 2019; 4(1): 1-4
5. Yap HK, Chiu MC, Bagga A, Safouh H. Pediatric Nephrology in Asia. In:Avner ED, Harmon WE. Niaudet P etal, (Eds). Pediatric Nephrology. 7th ed. IPNA-Springer, Verlag, Berlin, Heidelberg 2016; p: 2643-44.
6. Quader A, Uddin GM, Rahman MH, Roy RR, Huque SS, Begum A. Renal Diseases in Dhaka city. J Ped Nephrology 2016;4:86-91
7. Rizvi SA, Naqvi SA, Hussain Z, Hashmi A, Akhtar F, Zafar MN et al. Living related pediatric renal transplants: a single center experience from a developing country. Pediatr Transplant. 2002; 6: 101-10. PMID: 12000464.
8. Rizvi SA, Sultan S, Zafar MN, Naqvi SA, Lane ala AA, Hashmi S, et al. Pediatric kidney transplantation in the developing world:challenges and solution. AmJ Transplant 2013;13:2441-49. PMID: 23865679
9. Bagga A, Mantan M. Nephrotic Syndrome in Children. Indian J Med Res. 2005;122: 13-18
10. Hari P, Singla IK, Mantan M, Kanitkar M, Batra B, Bagga A. Chronic Renal Failure in Children. Indian Pdiatr 2003;40:1035-42
11. Moorani KN, Asim S, Sahida A .Pattern of kidney diseases in children. Pak Pdiatr J 2013;37:26-33
12. Sinha A, Bagga A,Krishna A, Bajpai M, Srinivas M, Uppal R, et al. Revised guidelines on management of antenatal hydronephrosis. Indian Pediatr. 2013; 50: 215-317. PMID:23474928
13. Ramzan A, Moorani KH. Pattern of renal diseases in children. J Surg Pak. 2011;6:4-12.