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Adolescents and adults in pediatric urology clinics

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Abstract *Objective:* Adolescents represent a significant proportion of the patients seen by pediatric urologists (PU). Adolescents that require long-term follow-up (FU) eventually need to be transferred to adult care. This research aims to describe the disease profile of adolescent and adult patients from a referral PU clinic, in order to allow future medical education and cost planning.
Patients and methods: A retrospective review was made of cases seen in a PU referral clinic from January 1st to December 31st 2011. Patients were classified as child ($\leq$12 years old), adolescent (12 $<$ age $\leq$ 18 years old) or adult ($>$18 years old). Diagnoses and presentations were analyzed.
Results: 521 patients were seen: 404 children (77.5%), 103 adolescents (19.8%) and 14 adults (2.7%). Clinical profiles differed between the three groups. 43.7% of the adolescents and all adults were FU cases or patients with late sequelae of congenital diseases. Some diseases predominated largely in adolescents.
Conclusions: Adolescents represent a significant proportion of our PU clinics. Half of them are FU cases or present sequelae from previous treatments/diseases. Some adolescents do not adapt to adult care, and persist being followed up by PU.

Introduction

In Brazil, since 1988, by law (Estatuto da Criança e do Adolescente — Brazilian Children and Adolescents Protective Law), patients from 0 to 18 years old should be treated in pediatric facilities. Post-pubertal adolescents represent a significant proportion of pediatric urology (PU) patients, presenting as new, late referral and follow-up (FU) cases,

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who frequently show sequelae of congenital diseases or their treatments. Adolescents' disease epidemiology differs from children's. Their psychological profile, sexual and social expectations and the dynamics of adolescence demand special efforts from the health team. Those particularities mean that pediatric specialists should be specifically educated to treat adolescents.

Adolescent patients who require long-term FU or are likely to present permanent sequelae or significant future health risks deriving from their present clinical situation, must be transferred to adult care in accordance with their ages. This demands specific psychological and logistical preparation of the patients, their families and the health services. Ideally, the patient should be offered a transition period while he/she is treated simultaneously by pediatric and adult specialists. The transfer of graduated pediatric patients to adult care is stressful for patients, families and for the health team, and demands a lot from the institution management structure.

The availability of specialists in adolescent urology is very limited [1]. An alternative model would allow specific adult patients to remain under treatment by pediatric teams, considering their extensive training and better clinical experience concerning congenital malformations and their sequelae. This kind of knowledge is limited in most adult urologists (GU). Nevertheless, it may not be ideal for pediatric specialists to assume full responsibility for adult patients, as their training may not be sufficient to detect or to solve problems and conditions that specifically pertain to adults.

This research project intends to describe the epidemiology and disease profiles of adolescents and adults being seen in clinics in a referral PU department, in order to allow future planning of medical education and distribution of institutional resources.

Methods

We reviewed the registers for all patients seen in the PU clinic in Servidores do Estado Federal Hospital, Rio de Janeiro, Brazil (teaching institution, quaternary referral for PU) from January 1st to December 31st 2011. The ages of the patients were registered and stratified as child (prepubertal, defined as $\leq$12 years of age), adolescent (defined as 12 $<$ age $\leq$ 18 years old) or adult ($>$18 years old). Adolescents were classified as new diagnosis, late referral (patients presenting symptoms corresponding to the present disease but not treated before adolescence) and FU/sequelae of congenital malformations or surgical treatments during childhood.

Statistical analysis, when applicable, was done using a chi square test, considering significant $p < 0.05$.

Results

Servidores do Estado hospital offers specialized PU clinics (subordinated to the Department of Pediatric Surgery and integrated with pediatric surgery specialists) and GU clinics. Specialists in PU integrate freely with GU specialists, in order to collaborate on resident education (GU residents rotate in PU) and to treat specific cases (PU specialists collaborate with GU to treat adults with congenital problems or sequelae from congenital conditions). There is no formal transition clinic for adolescents or young adults. Patients are sent to be treated by GU after 18 years of age, by rule. Our hospital is a public referral unit, consultations and surgeries are free and the doctors are salaried. The number of patients seen or operated on makes no difference to doctors' wages.

A total of a total of 521 patients were seen at Servidores do Estado PU Clinics from January—December 2011, divided into 404 children (mean 5.4 years old, median 5 years old), 103 adolescents (mean and median 15 years old) and 14 adults (19—38 years old, mean 26.4 years old, median 23.5 years old), representing, respectively, 77.5%, 19.8% and 2.7% of the total of cases. Proportions of males and females varied, being 3.2:1, 2.3:1 and 1:1, for children, adolescents and adults, respectively.

After excluding 48 children with unclear diagnoses by institutional registers, we studied the differential incidence of the most frequent diseases (Table 1, Fig. 1). There was a bimodal distribution of cases of obstructive hydronephroses (presenting in young children as fetal hydronephroses or urinary tract infections (UTIs) and in adolescents mainly as lumbar pain) and phimoses (mostly asymptomatic, referred by the parent or pediatrician in children and presenting as liquen cases or pain during erections in adolescents). Neurogenic bladder (NB) and voiding dysfunctions (VD) presented in the same proportions between children and adolescents, as new cases in the younger children and late sequelae in the adolescents. Exstrophy-epispadias complex (EEC) cases are disproportionately represented between the older patients, suggesting a big proportion of patients received as late referrals from other services after surgical failures. Cases of vesicoureteral reflux (VUR) predominated in small children. Urinary lithiasis cases were proportionately distributed between children and adolescents. Varicoceles are almost exclusive to adolescents, as well as sexually transmitted diseases (STDs). Gynecological problems are rare among children, but represent a significant proportion of adolescent cases. Of the hypospadias, 12.3% present in the adolescent patients, all of them previous surgical failures.

Concerning the evolution of their diseases, the adolescents seen in PU clinics suffered from diseases presenting in adolescence (n = 49, 47.5%), were receiving late FU for congenital diseases and/or sequelae from previous diseases or surgery (n = 45, 43.7%) or were late referrals to begin treatment for diseases that presented during childhood (n = 2, 1.9%). All adolescents with NB, posterior urethral valves (PUV), EEC, disorders of sexual differentiation (DSD) and hypospadias were late FU or patients showing sequelae of their primary diseases.

The adult population presented exclusively for long-term FU of complex primary congenital diseases or their sequelae, mainly EEC and NB. The cases of urolithiasis in the adult population are complications from bladder augmentations. Adult patients were, by rule, sent for treatment by adult specialists as soon as they were 19 years old. Reasons for patients to remain at or return to our PU clinics were difficult relationships with GU compared with PU ("they don't give attention to me as you do"), trust in PU ("you know me since I was a child", "he doesn't seem to be familiar with my condition") and requests from the PU