Clinical and Socio-Demographic Factors associated with treatment of Wilms Tumor: experience of INCA

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INTRODUCTION

Wilms tumor is the most common renal malignancy in childhood. It occurs approximately in 6% of children with cancer each year, with about 500 new cases per year. The peak incidence is between 2 and 5 years, 95% of children diagnosed before 10 years of age. The clinical presentation is usually with a tumor mass located on the flank unilateral. There are some reports in the literature that this is the pediatric tumor with less time to diagnosis. The treatment for Wilms tumor is a success story, with survival rates reaching 90%. The current therapy is based on multicenter studies by cooperative groups, such as the International Society of Paediatric Oncology (SIOP), and is stratified according to risk groups.

There are few publications demonstrating the time to diagnosis for renal tumors in childhood and it´s specific related factors.

OBJECTIVE

To analyze cases of unilateral Wilms' tumor, diagnosed and treated in a single institution from April 2003 to December 2012 , describing its demographic, social, clinical, disease characteristics and care and to correlate with the different time components of diagnosis and treatment of patients.

METHODS

We retrospectively analyzed 98 patients admitted from 2003 to 2012, who received treatment according to SIOP 2001 nephroblastoma protocol. Data collection was performed from patients' medical records. Variables analyzed included demographic, socioeconomic, clinical, tumor-related, characteristics of the medical assistance and treatment care.

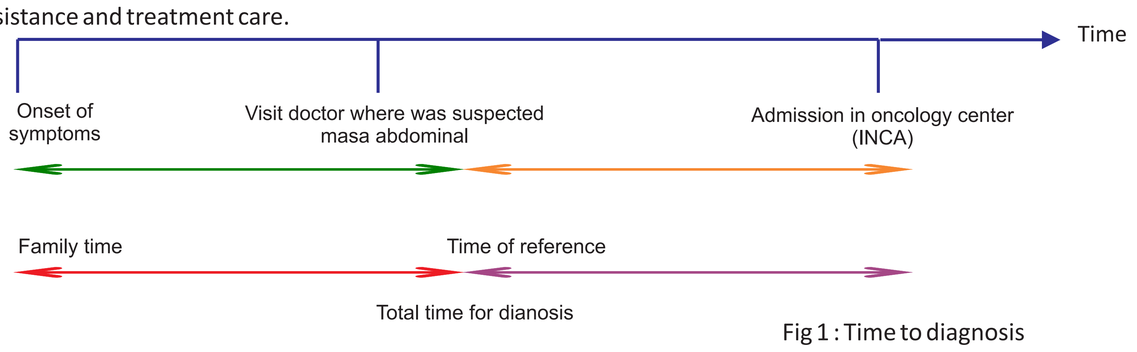

Fig 1 : Time to diagnosis

We defined three times to diagnosis: 1. Family time: related to family time interval between onset of symptoms and the first medical care where the suspected diagnosis was made; 2. Reference time: the time period from the first medical suspicion and referral to pediatric cancer centre- INCA; 3. Total Time: from beginning of symptoms to admission at INCA.

These times to diagnosis were correlated with sociodemographic, clinical, disease and medical care variables. We used nonparametric Kruskal-Wallis, Mann-Whitney and Student's t due to data presented great variability. We adopted a significance level of 5% probability ($p < 0,05$) and used the SPSS software, version 20.0.

RESULTS

N = 98

Median age: 3 years (range: 4m to 15 years)

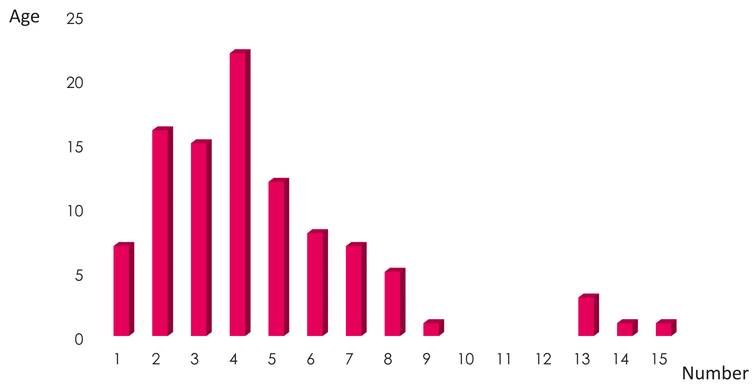

Fig. 2: Frequency distribution by age

Table 1: Chief Complaint

Abdominal Mass	53	54,1
Abdominal Pain	20	20,4
Hematuria	11	11,2
⬆abdominal volume	8	8,2
Other complaints	6	6,1
Total	98	100,0

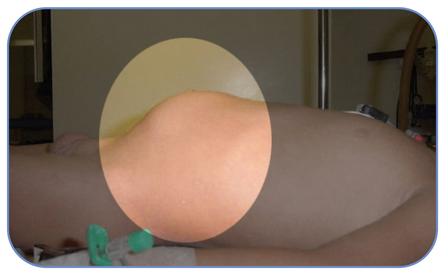

Table 2: Location of suspected diagnoses

Variable	Nº	%
Emergency	58	80,5
Unid. Not emergency	16	22,2
TOTAL	74	100,0

Table 3: Time of Diagnosis and Treatment.

RESULTS	FAMILY TIME	REFERENCE TIME	TOTAL TIME
N	89	71	92
MEAN	37,9	9,5	44
MEDIAN	21	5	29
MINIMUM	1	1	1
MAXIMUM	336	69	343

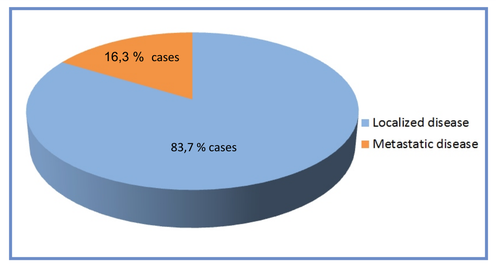

Fig. 3: Staging at Presentation

Table 4: Tumor volume X Initial Staging

	VARIABLE	N	MEAN	MEDIAN	MINIMUM	MAXIMUM	DP	*P*
INITIAL STAGING	Localized disease	77	620.91	503	65	2062	392.95	0.033
	Metastatic disease	13	1098.12	865	637	3200	706.49	

Table 5: Variables with statistical significance related to times to diagnosis

VARIABLES	FAMILY TIME	REFERENCE TIME	TOTAL TIME
Sex	0,718	0,7194	0,5318
Age (< or ≥ two years old)	0,044*	0,7945	0,3123
Ethnicity	0,378	0,8574	0,8529
Origem (near or far away from urban centers)	0,289	0,0248*	0,9423
Age Mother	0,4195	0,1399	0,1097
Maternal Education	0,5464	0,8965	0,5715
Chief Complaint (abdominal mass or other	0,322	0,1303	0,0546*
Tumour Volume	0,153	0,8103	0,7147
Staging Initial (metastatic or localized disease)	0,011*	0,1828	0,1139
Doctor Assistent	0,9869	0,0217	0,7027
Local Diagnostics (emergency unit or other	0,1113	0,3213	0,0577*
Number of Institutions	0,187	0,9389	0,21

Table 6: Comparison of diagnostic times among studies

	N	TOTAL TIME FOR DIAGNOSIS IN WEEKS		DELAYED BECAUSE OF MEDICAL (WEEKS)		
Renal Tumor	Média	Média	Mediam	Média	Mediam	% Time to diagnosis
Flores et al, 1986	45	2,8	-	-	-	-
Delahunt et al, 1992	177	8,7	-	-	-	-
Klein-Geltink et al, 2005	157	-	-	-	0,3	-
Dang-Tan et al, 2008	170	-	2,0	-	0,9	45
Loh et al, 2009	20	5,7	-	2,7	-	-
Agrupada	569	7,4	2,0	2,7	0,6	45
INCA	98	6,6	4,0	1,3	0,7	19,2

DISCUSSION

- The median maternal age was 27 years and in 48/98 (71.6%) mothers it was evidenced elementary education complete or incomplete
- The presence of a mass in the abdomen was the main complaint and was identified by the mother in 90.6% of cases
- The median tumor volume in localized disease at diagnosis was 503 cm3 and in metastatic disease was 865.0 cm3 ($p < 0.05$). In 58/72 (80.5%) cases with medical record information, the medical diagnosis suspicion was made at the emergency room
- The median time from onset symptom to admission in admission to our cancer centre (INCA) was four weeks, twice the amount described in the literature, featuring diagnostic delay
- The largest proportion of time was related to family diagnostic delay, being the reference time proportionally smaller in absolute numbers and equivalent to that found in the literature
- Age greater than two years old and metastatic disease at diagnosis were related to Family Delay and origin distant to large urban centers was related to Reference Delay

CONCLUSION

The delay in diagnosis is complex, multifactorial, controversial and it´s impact on prognosis is still unclear . Educational programs for early diagnosis and establishment of a referral chain for specialist treatment are essential for reducing the time to diagnosis and provide effective treatment.

Projeto Gráfico: Serviço de Edição e Informação Técnico-Científica / INCA