A two-year study of survival rate in children with Wilms tumor treated at Besat hospital of Hamadan (2005-2009)

H. Khoeini poorfar [1] H. Esfahani [1] M.K. Sabzehei [1] N. Gholizadeh [2] H. Bazmamoun [3]

Assistant Professor Department of Pediatric [1] , Associate Professor Department of Pediatric [3] , Hamedan University of Medical Sciences, Hamedan, Iran.
Assistant Professor Department of Oral Medicine [2] , Tabriz University of Medical Sciences, Tabriz, Iran.

(Received 30 Sep, 2012 Accepted 30 Jan, 2013)

Original Article

Abstract

Introduction: Wilms tumor is one of the most common renal tumors in children. This type of tumor - accounting for 6 percent of tumors in children – shows a good prognosis if treated in time. This study is to investigate the clinical and pathologic findings as well as response to treatment in Iranian children with Wilms tumor treated at Besat hospital of Hamadan (2005-2009).

Methods: In this descriptive cross-sectional study all the 24 children – with confirmed diagnosis of Wilms tumor (by biopsy) treated at hematology ward (Hamadan Besat Hospital) from 2005 to 2009 – were followed up by monthly examination and 3-monthly Para-clinical evaluations after treatment.

Results: Patients were at 3 stages of the disease phase at the time of diagnosis. Two patients had unfavorable histology. The most common clinical finding was abdominal mass. 2-year survival of the patients in stages 1 and 2, and stages 3 and 4 was 100% and 83%, respectively. Out of the total number of the patients, 4 cases referred with the recurrence-of the tumor (16.7%). Two of them were expired.

Conclusion: The findings of the present study showed that the survival rate observed in this study was better than other studies in this field.

Correspondence:
H. Bazmamoun, MD.
Department of Pediatrics, Besat Hospital, Hamedan University of Medical Sciences.
Hamedan, Iran
Tel:+98 912 1331917
Email:
dbazmamoun@yahoo.com

Key words: Children - Wilms Tumor - Survival Rate

Citation: Khoeini poorfar H, Esfahani E, Sabzehei M.K, Gholizadeh N, Bazmamoun H. A two-year study of survival rate in children with Wilms tumor treated at Besat hospital of Hamadan (2005-2009). Hormozgan Medical Journal 2014;18(5):379-383.

Introduction:

Wilms tumor is the second most common malignant retroperitoneal and the most common renal tumor in children (1), which account for 6% of cancers in children. The ratio of boy to girl is 0.92 to 1 and 0.6 to 1 in unilateral and bilateral disease, respectively (2).

78% of cases are diagnosed between 1 to 5 years old, and the maximum prevalence occurs in 3 to 4 old children (3). The average age of the patients at the time of diagnosis is 44 months in unilateral and 33 months in bilateral tumors (3,1).

Histologically, Wilms tumor is mostly unilateral and is divided into Favorable and Unfavorable from the view point of histology (4,

5). The Favorable and Unfavorable pathologic features are very important for the selection of the treatment strategy. Lack of anaplastic nuclear changes indicates favorable feature group (6). Most patients are referred to physicians just because of the abdominal lump. Other clinical findings include abdominal pain, hematuria, and fever (7). 2% to 4% of Wilms tumor cases considered a part of congenital syndromes (8). The tumor therapies include surgery, chemotherapy and radiotherapy. The treatment protocol depends on the stage and histology of tumor which performed based on NWTS protocols.

This study aims to investigate the clinical and pathological findings of the disease as well as its treatment response in Iranian children suffering from Wilms tumor.

Methods:

In this prospective study, 24 children – with Wilms tumor whose diagnosis confirmed by biopsy; being under treatment at hematology ward in Besat Hospital of Hamadan (BHH) from 2005 to 2009 – were followed up for two consecutive years after treatment. The children were examined monthly and Para-clinical examinations including Chest X-ray and abdominal sonography or CT-scan of lungs, abdomen and pelvis were performed every three months. Patients' data including age, sex, stage of the disease, type of pathology and treatment protocols were collected using a questionnaire. Treatments used were surgery, chemotherapy, and radiotherapy based on NWTS4 AND NWTS5. Data were analyzed with SPSS software package. Chi-Square test was used for the analysis.

Results:

The study included 16 (67%) girls and 8 (33%) boys. The youngest one was a 6-month patient and the oldest 4 years (Table 1). On average, girls and boys were 27.7 and 34.5 months, respectively.

As Table 1 shows, most of the patients were in stage 3 (10 patients) and the minimum number of patients were in stages 4 and 5 (each 2 patients). Only 2 patients who were in stage 4 showed unfavorable histology.

In terms of clinical demonstrations in the order of frequency they included abdominal mass in 14 patients (56.3%), hypertension in 4 patients (16.7%), abdominal pain, hematuria and weight loss each in 2 patients (8.3%).

The tumor recurred in 4 patients (16.7%): one patient in stage 2 and the three others in stages 3 and 4. The recurrence location in 3 cases (12.5%) was exclusively lungs and in one patient it occurred in both lungs and liver. Response to the treatment of recurrence for the patients in higher stages was not so satisfactory. Because 3 cases (66.7%) out of 4 were expired.

During the 2-year follow-up period, one patient in stage 2, and one in stage 3 did not experience recurrence of the disease. Despite this, death occurred in 8.3% of the total patients, in other word, in 16.7% of patients in higher stages. Death of one case occurred due to extensive pulmonary and hepatic–recurrence 6 months after the treatment, and in the other case due to hepatic recurrence 10 months after treatment. In the former case, starting chemotherapy, the patient became severely icteric and there was an extensive bleeding in mouth, nose and rectum. The patient probably was expired because of veno-occlussive disease. In the latter case, the patient was expired in the 3rd month of chemotherapy. It occurred following severe fever and neutropenia due to infection.

91.7% of the patients had a 2-year survival. The survival rate in the lower stages of the disease was 100% and in higher stages was 83.3%.

Table 1: Characteristics of the children with Wilms tumor in the study

Characteristics Patient ID	Sex	Pathology	Stage	Age (Mounths)
1	F	Favorable	1	6
2	F	Favorable	1	12
3	F	Favorable	1	7
4	F	Favorable	1	13
5	F	Favorable	2	24
6	M	Favorable	2	24
7	F	Favorable	2	30
8	F	Favorable	2	23
9	M	Favorable	2	25
10	F	Favorable	2	17
11	F	Favorable	3	30
12	M	Favorable	3	36
13	M	Favorable	3	36
14	M	Favorable	3	42
15	F	Favorable	3	23
16	F	Favorable	3	24
17	F	Favorable	3	19
18	M	Favorable	3	35
19	M	Favorable	3	37
20	M	Favorable	3	41
21	F	Unfavorable	4	48
22	F	Unfavorable	4	49
23	F	Favorable	5	48
24	F	Favorable	5	48

Conclusion:

In this study, the age average was 29 months. The average was higher in boys than girls. While other studies reported higher age average and a higher age average for girls than boys (9,10). The difference between the findings of this study and other studies may be justified by the importance of the role of genetic factors for the tumor (11).

Our study revealed that girls are affected twice as much as boys. While a study in Sudan (9) reported a 0.9 (boys) to 1 (girls) ratio and a study in Nigeria (12) showed a 1.1 to 1 ratio. Both studies show a remarkable difference from our study.

In the present study, 8% of tumors had unfavorable histology which was similar to figures reported in other resources (13,14). Moreover, the most common disease presentation like other similar studies in this field was stage 3 (9,10).

In our study, the prognosis of the disease found to be good even in advanced stages. Because all the patients in stages 1 and 2, and 83% of the patients in stages 3 and 4had a survival rate of 2 years.

As it was pointed out in the Results section of this article, occurrence of four relapses (metastatic lesions) emphasizes on the necessity for precise examinations after termination of treatment. Altogether, the findings of this study are better than other similar ones (12, 15-17).

The results obtained from this study showed that the survival rate observed in the studied patients was better than many studies carried out in this field.

References:

1. Breslow N, Olshan A, Beckwith JB, Green DM. Epidemiology of wilms tumor. *Med Pediatr Oncol*. 2008;21:172-181.

2. Stiller CA, Parkin DM. Geographic and ethnic variation in the incidence of childhood cancer. *Br Med Bull*. 1996;52;682-703.

3. Scott RH, Walker L, Olsen OE. Surveillance for wilms tumor in at risk children: Pragmatic recommendations for best practice. *Arch Dis Child*. 2006;91:995-999.

4. Perlman EJ. Pediatric renal tumors: Practical updates for the pathologist. *Pediatr Dev Patho*. 2005;8:320-338.

5. Beckwith JB, Hopkins H. Precursor lesions of wilms tumor: Clinical and biological implications. *Med Pediatr Onco*. 1993;21:158-168.

6. Bardeesy N, Falkoff D, Petruzzi MJ, Nowak N, Zabel B, Adum M, et al. Anaplastic wilms tumour, a sub type displaying poor prognosis, harbour p53 gene mutations. *Nat Genet*. 2007;7:91-97.

7. Weirich A, Leuschner I, Harms D, Vujanic GM, Tröger J, Abel U, et al. Clinical impact of histologic subtyps in localized non anaplastic nephroblastoma treated according to the trial and study SIOP-91GPOH. *Ann Onco*. 2007;12:311-319.

8. Hawkins MM, Winter DL, Burton HS, Potok MH. Heritability of wilms tumor. *J Natl Cancer Inst*. 2007;87:1323-1324.

9. Abuidris DO, Elimam ME, Nugud FM, Elgaili EM, Ahmed ME, Arora RS. Wilms Tumour in Sudan. *Pediatr Blood Cancer*. 2008;50:1135-1137.

10. Rogers T, Bowley DM, Poole J, Swanepoel P, Wainwright J, Beale P, et al. Experience and Outcomes of Nephroblastoma in Johannesburg, 1998-2003. *Eur J Pediatr Surg*. 2007;17:41-44.

11. Dome JS, Cotton CA, Perlman EJ. Recent advances in Wilms tumor genetics. *Curr Opin Paediatr*. 2009;14:5-11.

12. Ekenze SO, Agugua-Obianyo NE, Odetunde OA. The challenge of nephroblastoma in a developing country. *Annals Oncol*. 2006;17:1598-1600.

13. Varan A. Wilms' Tumor in Children: An Overview. *Nephron Clin Pract*. 2008;108:83-90.

14. Dome J, Huff V. Wilms Tumor Overview. Seattle: Washington University Press; 1993.

15. Anderson PM, Dhamne CA, Huff V. Nelson textbook of pediatrics. 19th ed. Philadelphia: WB Saunders Press; 2011:1757-1760.

16. Sangkhathat S, Chotsampancharaen T, Kayasut K, Patrapinyokul S, Chiengkriwate P, Kitichet R, et al. Outcomes of Pediatric Nephroblastoma in Southern Thailand. *Asian Pac J Cancer Prev*. 2008;9:643-647.

17. Abdallah FK, Macharia WM. Clinical presentation and treatment outcome in children with nephroblastoma in Kenya. *East Afr Med J*. 2001;78:43-47.

بررسی میزان بقا ۲ ساله کودکان مبتلا به تومور ویلمز در بیمارستان بعثت همدان

حسین خوئینی پورفر [۱] حسین اصفهانی [۱] محمدکاظم سبزه‌ای [۱] نرگس قلی‌زاده [۲] حسن بزم‌آمون [۳]

[۱] استادیار، گروه کودکان، [۳] دانشیار، گروه کودکان، دانشگاه علوم پزشکی همدان، همدان، ایران. [۲] استادیار، گروه بیماریهای دهان، دانشگاه علوم پزشکی تبریز، تبریز، ایران.

مجله پزشکی هرمزگان سال هجدهم شماره پنجم ۹۳ صفحات ۳۸۳-۳۷۹

چکیده

مقدمه: *تومور ویلمز شایع‌ترین تومور کلیه در کودکان است. این تومور شش درصد تمام سرطان‌های کودکان را تشکیل داده و اگر زود درمان شود، دارای پیش‌آگهی خوبی است. مطالعه حاضر به منظور بررسی یافته‌های بالینی و پاتولوژیک بیماری و پاسخ درمانی آن در کودکان ایرانی مبتلا به تومور ویلمز که طی سالهای ۱۳۸۴ الی ۱۳۸۸ در بخش خون بیمارستان بعثت همدان تحت درمان قرار گرفته‌اند، انجام گرفت.*

روش کار: *در این مطالعه توصیفی مقطعی، تمام ۲۴ کودک مبتلا به تومور ویلمز اثبات شده با بیوپسی که طی سالهای ۱۳۸۴ الی ۱۳۸۸ در بخش خون بیمارستان بعثت همدان تحت درمان قرار گرفته بودند، برای مدت دو سال و به فواصل هر ماه معاینه و هر سه ماه ارزیابی پاراکلینیکی، پس از قطع درمان پیگیری شدند.*

نتایج: *در هنگام تشخیص بیشتر بیماران، در مرحله ۳ بیماری قرار داشتند. دو بیمار دارای هیستولوژی unfavorable بودند و شایع‌ترین یافته بالینی مشاهده شده، توده شکمی بود. میزان بقا دو ساله در بیماران با مرحله‌های ۱ و ۲ بیماری، ۱۰۰ درصد و در بیماران با مرحله‌های ۳ و ۴، ۸۳ درصد بود. چهار بیمار از مجموع بیماران فوق (۱۶/۷ درصد) با عود مراجعه داشتند، که دو موردشان (۸/۳ درصد) فوت شدند. موارد فوت هر دو در مراحل بالا اتفاق افتاده است.*

نتیجه‌گیری: *نتایج بدست آمده در مطالعه حاضر نشان داد که میزان بقاء مشاهده شده در این بررسی، بهتر از بسیاری از مطالعات انجام شده در این زمینه می‌باشد.*

کلیدواژه‌ها: *کودکان – تومور ویلمز – میزان بقا*

نویسنده مسئول:
دکتر حسن بزم‌آمون
گروه کودکان بیمارستان بعثت، دانشگاه علوم پزشکی همدان
همدان – ایران
تلفن: ۱۳۳۱۹۱۷ ۹۱۲ ۹۸ +
پست الکترونیکی:
dbazmamoun@yahoo.com

نوع مقاله: پژوهشی

دریافت مقاله: ۹۱/۷/۹ اصلاح نهایی: ۹۱/۹/۲۸ پذیرش مقاله: ۹۱/۱۱/۱۱

ارجاع: خوئینی پورفر حسین، اصفهانی حسین، سبزه‌ای محمد کاظم، قلی‌زاده نرگس، بزم‌آمون حسین. بررسی میزان بقا ۲ ساله کودکان مبتلا به تومور ویلمز در بیمارستان بعثت همدان. مجله پزشکی هرمزگان ۱۳۹۳؛۱۸(۵):۳۸۳-۳۷۹.