

THE EXPERIENCE IN TREATING NEPHROBLASTOMA AT HUE CENTRAL HOSPITAL

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ABSTRACT

Objective: Evaluation of effectiveness of surgical treatment combined with chemo-radio therapy of nephroblastoma.

Material and methods: Prospective collected data from 25 patients with nephroblastoma who underwent surgical treatment combined with chemo-radio therapy at Hue Central Hospital from January 2010 to January 2016.

Result: Age average 42.3 months, male/female 1.27/1, the most common symptom was abdominal mass with 96%, in 64% of the cases the tumor occurred on the right side, in 36% on the left side. 72% of the patients were treated with National Wilms Tumor Study Protocol, 28% of the patients were treated with International Society of Paediatric Oncology Protocol. Average operating time was 120±25 minutes. The duration of hospitalization was 6.2±0.3 days. 28% of the patients were pathologically diagnosed with favorable histology, 56% with intermediate histological and 16% of the patients with unfavorable histology. Recurrence rate was 12% in the first year, death rate 8%. Survival rate after 2 years was 92%.

Conclusion: Surgical treatment combined with chemo-radio therapy of nephroblastoma is safe and effective.

Key words: nephroblastoma, chemo-radio therapy

I. INTRODUCTION

Nephroblastoma (Wilms tumor) is the most common malignancy among the primary tumors of the kidney in children. In the United States the annual incidence of Wilm's tumor was 7.5/1.000.000 children under 15 years of age, accounting for 6% of all childhood cancers [2]. The disease occurs in both sexes, the ratio of male / female is 0.92 / 1. The disease may manifest on one side or on both sides of the kidney at a rate of 5-10% of the cases.

The disease usually occurs in preschool age with an average age of 41.5 months in male and 46.9 months in female patients for unilateral tumors. Patients with bilateral tumors had an average age of 29.5 months for males and 32.6 months for females. As noted at the International Paediatric Hospital in Hanoi, Wilms tumor accounts for about 2% of all childhood cancers [1]. Over the years study of children with nephroblastoma have shown very good results. Treatment of nephroblastoma includes

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surgery, radiation and chemotherapy depending on the stage of the disease as well as histopathological characteristics. There are 2 ways of treatments which are applied worldwide: On the one hand treatment according to the SIOP (International d'Oncologie Societe' Pediatric) guidelines suggesting chemotherapy before surgery to reduce surgical complications, mitigating post-surgical treatment to reduce complications, late complications. On the other hand treatment according to the NWTS (Wilm's tumor National Study) advocating surgical intervention first to ensure accurate diagnosis and appropriate treatment for the condition. Each of these approaches have advantages and disadvantages when applied in practice treating patients.

II. MATERIAL AND METHODS

2.1. Material

We included 25 patients diagnosed with nephroblastoma who were treated with surgery combined with radio-chemotherapy at Hue Central Hospital.

Indication.

The patient was diagnosed with kidney cells in the primary tumor stage I, II, III.

The patients diagnosed with nephroblastoma stage IV were treated with chemotherapy and surgical removal of the tumor.

Contraindication.

Patients diagnosed with nephroblastoma at a later stage IV, stage V or with detectable metastasis received chemotherapy, but not surgery.

2.2. Methods

The study period: 1/2010 - 1/2016.

Study Design: Retrospective study.

Research content:

Clinical studies and clinical access:

The number of patients, distribution of age, sex, location of the tumor and the clinical symptoms, the size of the tumor. Staging before and after surgery, the histopathological nature.

Evaluating the results of treatment, and prognosis factors affecting treatment outcomes.

The data is processed by software Medcalc.

III. RESULTS

The average age of the patients was 42.3 months, with a minimum of 6 months and maximum of 10 years of age. We observed 14 male patients (56%) and 11 female patients (44%). The gender distribution is shown in Figure 3.1

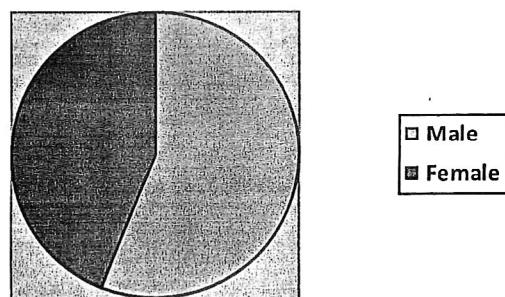


Figure 3.1 Distribution of gender

The proportion of Male / Female: 1.27 / 1.

Big belly is the most common clinical symptom that has occurred in 24 cases (96%), while weight loss only occurred in 9 cases (36%). Further clinical symptoms are noted in Table 3.1

Table 3.1: The clinical symptoms.

| Clinical Symptoms | n | % |
|-------------------|----|----|
| Big Belly | 24 | 96 |
| Abdominal Pain | 19 | 76 |
| Hematuria | 6 | 24 |
| Fever | 8 | 32 |
| Nausea, vomiting | 11 | 44 |
| Weight loss | 9 | 36 |
| Hypertension | 6 | 24 |

In 16 cases (64%) the tumor was located in the right kidney, in 9 cases (36%) in the left, which leads to a ratio of 1.77 / 1 (right / left kidney). We didn't observe bilateral occurrence.

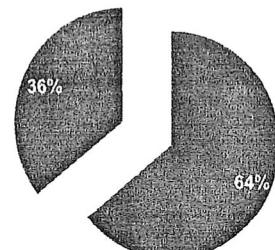


Figure 3.2. Location of the tumor

The average size of tumor in ultrasound images was 6.8 ± 0.5 cm with a maximum of 12,5 cm and a minimum of 3,5 cm. Preoperative diagnosis also included CT-scan in 100% of the cases. The results concerning the size of the tumor were corresponding in both methods.

Table 3.2. Diagnostic preoperative staging

| Stages | n | % |
|--------|---|----|
| I | 6 | 24 |
| II | 8 | 32 |
| III | 7 | 28 |
| IV | 4 | 16 |

There were 8 cases (32%) in stage II and 7 cases (28%) in stage III. There are 4 cases (16%) were diagnosed with preoperative nephroblastoma later stage and not surgery, were treated biopsy and neoadjuvant aimed at reducing the size of the tumor and the stage disease then surgical treatment. The operation time is 120 ± 25 in which time is 85 minutes shortest and longest was 165 minutes. There are 3 cases (12%) had a blood transfusion during surgery. No cases has resurgery. The average weight of tumors in the operating is 660 ± 50 grams smallest tumor which is 470g and the largest is 880 grams. Diagnostic stage of the operation is recorded in Table 3.3. While 8 cases (32%) in stage II, 6 cases (24%) with stage I and 11 cases (44%) in stage III.

Table 3.3. The intraoperative staging

| Stages | n | % |
|--------|----|----|
| I | 6 | 24 |
| II | 8 | 32 |
| III | 11 | 44 |

In 19 cases the drain was removed on postoperative day 2 (76%), whereas in the other 6 cases (24%) the drain was removed on the third day postoperatively. One case of wound infection occurred (4%). The duration of hospitalization was 6.6 ± 0.3 postoperative days with a minimum of 5 days and a maximum of 10 days. Postoperative histological results revealed 7 cases (28%) with favorable histology, 14 (56%) cases with intermediate

histology and 4 (16%) cases with unfavorable histology. After surgery 8 patients (32%) were diagnosed with stage I, favorable histology and tumor weight less than 550g and thus did not need postoperative chemotherapy. After a follow up of 3 months no cases of recurrence were recorded. 17 (68%) remaining cases were transferred to Oncology centers for adjuvant postoperative treatment. All patients were re-examined regularly after 3 and 6 months in the first year and every 6 months during the next year. 3 cases of recurrence were recorded during the first year of follow up, 2 patients (8%) developed lung metastasis and died consequently during the first 6 month. The survival of patients after 2 years of follow-up was 92%.

IV. DISCUSSION

In our study the proportion of gender, age, location of the tumor show similar results as reported by Vietnamese and foreign authors [1], [3], [6], [8]. The common symptoms of nephroblastoma are symptoms of tumors of the urinary system such as abdominal mass in 96% of the cases and hematuria in 24% of the cases. This is also recognized in the work of Nguyen Buu Trieu [2] and Joseph M. Gleason [5]. There are two different ways of treating Wilms tumors today: Firstly, according to the SIOP guidelines with chemotherapy before surgery in order to reduce the size of the tumor to minimize the hazards and complications during and after consecutive surgery, regardless of the stage of the tumor. Secondly, according to the NWTS surgical intervention is the first choice for tumors in an early stage I and II which can be completely removed and then treated adjuvantly. As for the tumors in later stages III, IV, V chemotherapy is needed before radiation and a consecutive reevaluation of operability should be performed [3], [4], [8]. Our study was carried out depending on the preoperative evaluation period based on the clinical and preclinical findings to select appropriate treatment regimens for specific patients. For smaller tumors at an early stage we chose regimens according to NWTS and for patients in late stages, large tumor

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size and metastatic spread we chose treatment by SIOP and received positive results.

In cases of stage IV tumors with metastatic spread and negative histological results of the biopsy we applied neoadjuvant therapy based on CT imaging and clinical symptoms and reevaluated the tumor size to see its decrease in the CT-scan afterwards. After neoadjuvant treatment we conducted surgical removal of the tumor. Specifically there are 18 cases we have the surgery at the beginning proportion of 72% and 7 (28%) cases tumor size organizations invasion to adjacent organ or has metastasized but whether drivers chemotherapy and radiation has decreased tumor size, we have a surgical procedure to remove the tumor and kidney. This has also been described by Sushmita Bhatnagar [4], Robert C. Shamberger [6] and Sabina Szymik-Kantorowicz [7]. After the first year we recorded 3 cases of recurrence (12%). In all three cases a rupture of the tumor was recognized intraoperatively. Thus operation should be performed cautiously with a total removal of the tumor in full integrity to minimize the rate of recurrence [8]. The two patients (8%) who died

were found with unfavourable histology and lung metastasis six month postoperatively. One of these patients showed stage III, the other stage IV disease. The overall survival rate of our study participants were 92%. In the process of adding our according record has not added any case of relapse or death. Sushmita Bhatnagar [4] described a survival rate of 90% after 2 and a relapse rate of 10%. R C Shamberger [6] observed a survival rate of 84%, B. Buruprasad [10] one of 83.3% after 5 years. Due to the small number of participants of this study (25 cases), early diagnosis and proper treatment indication, we achieved a slightly better outcome of the two years survival rate.

V. CONCLUSION

Primary tumors are to be treated with a combined approach including chemo-radiotherapy and surgery to increase positive outcome as well as intra- and postoperative safety. However a correct preoperative staging with reevaluation after surgery considering histological results is mandatory to optimize further treatment strategy.

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