

# PROFILE OF BRAIN TUMOR PATIENTS IN 10 HOSPITALS IN NORTH SUMATERA

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**Abstract—** Background: Although brain tumors only 1.4% of all tumors, high fatality rate made these tumors need special attention. In North Sumatera, there is no data on brain tumors patients profile.

**Objective:** To determine brain tumor patients' profile in North Sumatera, Indonesia.

**Method:** A descriptive hospital-based study with primary data which taken from September–December 2012.

**Result:** Of 75 brain tumors patients surveyed in 10 hospitals in North Sumatera 38 (50.7%) patients were male and 37 (49.3%) patients were female. Mean of age was 51.45 (11–87) years old. Most of the subjects were housewives, 26 (34.7%) patients. The most common cause that brought these patients to see doctors was headache 32 (42.7%), followed by decreased level of consciousness 17 (22.7%). Clinical manifestations found in these patients were headache 67 (89.3%), dizziness/vertigo 41 (54.7%), convulsion 22 (29.3%), vomiting 32 (42.7%), motor dysfunction 46 (61.3%), sensory dysfunction 21 (28%), and cognitive decline 21 (28%). Only 7 patients (9.3%) had history of tumor in his/her relatives. Eighteen patients (24%) were treated surgically and 8 (10.7%) were given radiotherapy. Seventy one patients were alive (94.7%) when discharged from the hospitals due to various reasons. Head CT Scan/MRI showed primary tumors in 56 (74.7%) patients. Of these primary tumors 25 (44.6%) patients were meningioma and 19 (33.9%) were astrocytoma. Of 19 (25.3%) patients with secondary tumor, most common primary tumor were found in the lung 11 (57.9%).

**Conclusion:** Sex the patients were equally distributed with mean of age was 51.45 (11–87) years old. The most common cause that brought these patients to seek for treatment were headache. Most of these patients were treated conservatively. The most common head CT Scan/MRI findings showed primary tumors.

**Keywords—** brain tumor, North Sumatera, profile

## I. INTRODUCTION

The Brain tumors covered only 1.4% of all malignancy, however high fatality rate and traumatic experience was unavoidable for patients and family members made these brain tumors need a particular attention<sup>1</sup>. The treatment of patients with tumors was different from another malignancy<sup>2</sup>.

In adults, secondary tumors was ten times more common than primary tumors, whereas the incidence of primary tumors reached 14.4 / 100,000

population with glioma as the most frequent types (40%).<sup>1,3</sup>

Histopathologically, tumors were classified into: neuroepithelial tissue tumors (gliomas, including astrocytoma, anaplastic astrocytes, glioblastoma, oligodendroglioma, and ependimoma), meningeal tumor (meningioma and hemangioblastoma), germ cell tumors, and sellar tumors (pituitary tumors and craniopharyngiomas).<sup>4</sup>

## II. METHODOLOGY

This study was a descriptive study with the cross sectional method of brain tumor patients who were treated at 10 hospitals in North Sumatra Province. Data collection was conducted from September–December 2012 by neurologists who served in the hospitals of this study.

The data analysis was done by using data processing software and Statistical Package for Social Sciences (SPSS).

## III. RESULTS AND DISCUSSION

Description The data collection were collected on brain tumor patients were treated at 10 hospitals in North Sumatra, obtained a total of 75 research subjects for descriptive study.

This study showed 38 (50.7%) male patients and 37 (49.3%) female patients. Male patients with brain tumors (60.74%) are more than female patients (39.26%).<sup>4,5</sup> The mean age in this study was 51.45 (11–87) years. In the United States, the mean age at diagnosis in patients with primary tumors is 57 years.<sup>4</sup> Although tumors can occurs at any age, however it is more common in late middle age.<sup>6</sup>

Most of subject occupations for this study were housewives 26 (34.7%). Table distribution of subjects' medical condition (table 2) showed the

most common chief complaints were: headache 32 (42.7%), followed by decreased level consciousness 17 (22.7%), hemiparesis 12 (16%), and seizures 11 (14.7%). Clinical manifestations were experienced by patients: headache 67 (89.3%), dizziness / vertigo 41 (54.7%), seizures 22 (29.3%), vomiting 32 (42.7%), motor disorders 46 (61.3%), sensory disturbances 21 (28%), Cognitive decline 21 (28%), and decreasing level consciousness 17 (22.7%). Headache is the first symptom found in approximately 30-40% of brain tumor patients.<sup>4,6</sup> Seizures occur in 33% of patients with brain tumors.<sup>6</sup> Seizure is the earliest symptom of brain tumors in 25% of cases and more than 35% of cases at an advanced stage.<sup>4</sup> Vomiting was found in 30% of cases and commonly accompanies with headache.<sup>4</sup> Patients who had a family history of brain tumors were only 7 (9.3%). Patients were treated surgically 18 (24%) and were given radiotherapy 8 (10.7%), 71 patients were alive (94.7%) at the end of data collection.

Based on the CT Scan/MRI head: primary tumors were 56 patients (74.7%), secondary tumors were 19 patients (25.3%). On the secondary tumors, most metastases from the lung 11 (57.9%) cases, while the primary tumor: meningioma 25 (44.6%) and astrocytoma 19 (33.9%). Based on the Fisher's research, et al. it was found that Primary brain tumors (80%) and secondary (20%).<sup>4</sup> Brain metastases was found in 20-40% of cancer patients and have 10 : 1 ratio with a primary brain tumors.<sup>7,8</sup> The typed of cancer most commonly metastasizes to the brain is lung cancer, is 30-60% of brain metastases.<sup>7,8</sup> In the US 35,000 new cases of brain tumors was found each year, the most common tumor type were meningioma (39.26%) .<sup>4</sup> In Japanese studies, 32% of the primary brain tumors was meningioma.<sup>6</sup> Astrocytoma was about 35% of primary brain tumors<sup>5,6</sup>

The limitation of this study is neuroimaging scans done by different tools and interpreted by different radiologists, so that the accuracy of diagnostic in radiology was vary, the diagnosis definitely can not do biopsy and the accurate result could not be obtained because the patient was not followed by the treatment of the disease after getting out from the hospital.

TABEL 1  
CHARACTERISTIC DEMOGRAPHIC DISTRIBUTION  
OF RESEARCH STUDY

Demographic Characteristic	Total	Percentage
<b>Sex</b>		
Male	38	50.7
Female	37	49.3
<b>Occupation</b>	26	
Housewife	26	34.7
Private	17	22.7
Jobless	13	17.3
Etc.	8	10.7
Pensiunan	6	8.0
Public civil servant	5	6.7

TABEL 2.  
CLINICAL CONDITION DISTRIBUTION OF RESEARCH STUDY

Clinical condition	Total	Percentage
<b>Main Complaint</b>		
Headache	32	42.7
Decreasing level of consciousness	17	22.7
Convulsion	12	16.0
Hemiparesis	11	14.7
Visual dysfunction	2	2.6
Vertigo	1	1.3
<b>Consciousness</b>		
Conscious	58	77.3
Decreasing level of consciousness	17	22.7
<b>Headache</b>		
Yes	67	89.3
No	8	10.7
<b>Dizziness/vertigo</b>		
Yes	41	54.7
No	34	45.3
<b>Convulsion</b>		
Yes	22	29.3
No	53	70.7
<b>Vomiting</b>		
Yes	32	42.7
No	43	57.3
<b>Motor dysfunction</b>		
Yes	46	61.3
No	29	38.7
<b>Sensory dysfunction</b>		
Yes	21	28.0
No	54	72.0
<b>Cognitive dysfunction</b>		
Yes	7	28.0
No	68	72.0
<b>Family background</b>		
Yes	18	9.3
No	57	90.7
<b>Operation</b>		
Yes	8	24.0
No	67	76.0
<b>Radiotherapy</b>		
Yes	8	10.7
No	67	89.3
<b>OutCome</b>		
Alive	71	94.7
Dead	4	5.3
<b>Result CT Scan/MRI</b>		
Primer	56	74.7
Metastasis	19	25.3

was alive at the time the patient got out of the hospital with various reasons. Based on CT Scan/MRI head result, most of them showed the imaging of primary tumor (Meningioma and astrocytoma). The certain diagnosis was not obtained because biopsy was not performed.

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#### IV. CONCLUSION

This The amount of male patients was compatible with female patients. The mean age was 51.45 (11-87) years. The most frequent main complaint was headache. During the first checked, Most of the patients were conscious. Most of the patients got conservatives therapy and the result