

Malignant Nervous System Neoplasm in Nepal - Evidence from Hospital Based National Cancer Registry 2003 – 2017

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ABSTRACT

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Cancer registration is continuous process that collects information from hospital known as hospital based cancer registry (HBCR). Whereas, registration of special type of cancer topography is known as special registry i.e. brain tumor registry, lung cancer registry etc. A brain tumor, known as an intracranial tumor, is an abnormal mass of tissue in which cells grow and multiply uncontrollably, seemingly unchecked by the mechanisms that control normal cells. Brain tumor registration is dynamic process that collect cancer information from hospitals. To know the cancer incidence and burden of cancer patients in hospital, this program helps to know the personal and demographic information like age, sex, address, topography and morphology of the cancer patients who were registered in hospital. We are presently incorporating twelve major hospital of the nation where cancer is being treated. A primary or metastatic malignant neoplasm involving the nervous system are increasing day by day. National NS tumor registry Programme should be expanded to other private/Government hospitals and medical colleges where NS tumors are diagnosed and treated.

Keywords : Brain Tumor Registry, Hospital Based, Nervous System Neoplasm

I. INTRODUCTION

There are many types of brain and spinal cord tumors. The tumors are formed by the abnormal growth of cells and may begin in different parts of the brain or spinal cord. Together, the brain and spinal cord make up the central nervous system (CNS). The tumors may be either benign (not cancer) or malignant (cancer): Malignant brain and spinal cord tumors are likely to grow quickly and spread into other brain tissue.

Primary brain or spinal cord tumor is a tumor that starts in the brain or spinal cord. This year, an estimated 23,890 adults (13,590 men and 10,300 women) in the United States will be diagnosed with primary cancerous tumors of the brain and spinal cord. A person's likelihood of developing this type of tumor in their lifetime is less than 1%. Brain tumors account for 85% to 90% of all primary central nervous system (CNS) tumors.

Brain and other nervous system cancer is the 10th leading cause of death for men and women. It is

estimated that 18,020 adults (10,190 men and 7,830 women) will die from primary cancerous brain and CNS tumors this year.

Nervous system cancer incidence in Nepal was increasing every year. Therefore the aim of this study is to hit upon the national scenario of malignant nervous system neoplasm burden in Nepal for 2003-2017.

II. METHODS AND MATERIAL

This is a retrospective analysis of all brain cancer patients of all age groups from 12 major hospitals of Nepal registered between January 1st to December 31st of each years from 2013 – 2017.

III. RESULTS AND DISCUSSION

Result

Table 1

Hospital based malignant NS neoplasm by site and sex - 2003					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	1	0	1	0.0
C69	Eye and adnexa	24	13	37	1.1
C70	Meninges	1	0	1	0.0
C71	Brain	20	10	30	0.9
C72	Spinal cord, cranial, nerves, and other parts of CNS	3	0	3	0.0
C75	Other endocrine glands and related structures	1	0	1	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	1488	1763	3251	100.0

Table 2

Hospital based malignant NS neoplasm by site and sex - 2004					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	0	1	1	0.2
C69	Eye and adnexa	9	9	18	0.4
C70	Meninges	1	1	2	0.0
C71	Brain	48	27	75	1.7
C72	Spinal cord, cranial, nerves, and other parts of CNS	2	1	3	0.0
C75	Other endocrine glands and related structures	0	1	1	0.0
C76	Other ill defined site of head, face & scalp	0	0	0	0
**	Total cancers of the yrs.	2030	2117	4201	100.0

Table 3

Hospital based malignant NS neoplasm by site and sex - 2005					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	3	0	3	0.0
C69	Eye and adnexa	16	23	39	0.8
C70	Meninges	0	1	1	0.0

C71	Brain	42	27	69	1.5
C72	Spinal cord, cranial, nerves, and other parts of CNS	2	1	3	0.0
C75	Other endocrine glands and related structures	1	1	2	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancer of the yrs.	2057	2340	4397	100.0

Table 4

Hospital based malignant NS neoplasm by site and sex - 2006					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	1	1	2	0.0
C69	Eye and adnexa	12	8	20	0.4
C70	Meninges	4	1	5	0.1
C71	Brain	55	6	61	1.2
C72	Spinal cord, cranial, nerves, and other parts of CNS	0	1	1	0.0
C75	Other endocrine glands and related structures	1	2	3	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	2325	2583	4908	100.0

Table 5

Hospital based malignant NS neoplasm by site and sex - 2007					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	0	1	1	0.0
C69	Eye and adnexa	3	4	7	0.1
C70	Meninges	NA	NA	NA	NA
C71	Brain	5	9	14	0.2
C72	Spinal cord, cranial, nerves, and other parts of CNS	NA	NA	NA	NA
C75	Other endocrine glands and related structures	NA	NA	NA	NA
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	2758	3277	6035	100.0

Table 6

Hospital based malignant NS neoplasm by site and sex - 2008					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	3	7	10	0.2
C69	Eye and adnexa	34	30	64	1.0
C70	Meninges	0	1	1	0.0
C71	Brain	54	49	103	1.7
C72	Spinal cord, cranial, nerves, and other parts of CNS	2	4	6	0.1
C75	Other endocrine glands and related structures	0	2	2	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	2702	3247	5949	100.0

Table 7

Hospital based malignant NS neoplasm by site and sex - 2009					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	20	15	35	0.5
C69	Eye and adnexa	28	15	43	0.6
C70	Meninges	4	2	6	0.0
C71	Brain	81	44	125	2.0
C72	Spinal cord, cranial, nerves, and other parts of CNS	3	2	5	0.0
C75	Other endocrine glands and related structures	1	1	2	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	2970	3229	6199	100.0

Table 8

Hospital based malignant NS neoplasm by site and sex - 2010					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	0	1	0.0	0.0
C69	Eye and adnexa	24	28	52	0.7
C70	Meninges	10	19	29	0.4
C71	Brain	94	53	147	2.1
C72	Spinal cord, cranial, nerves, and other parts of CNS	5	3	8	0.1
C75	Other endocrine glands and related structures	2	3	5	0.1
C76	Other ill defined site of head, face & scalp	NA	NA	NA	0.0
**	Total cancers of the yrs.	3192	3581	6773	100.0

Table 9

Hospital based malignant NS neoplasm by site and sex - 2011					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	3	6	9	0.1
C69	Eye and adnexa	29	33	62	0.8
C70	Meninges	4	1	5	0.0
C71	Brain	74	53	127	1.7
C72	Spinal cord, cranial, nerves, and other parts of CNS	6	1	7	0.0
C75	Other endocrine glands and related structures	4	2	6	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Totalcancers of the yrs.	3295	3793	7088	100.0

Table 10

Hospital based malignant NS neoplasm by site and sex - 2012					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	2	4	6	0.0
C69	Eye and adnexa	22	16	38	0.5

C70	Meninges	6	6	12	0.6
C71	Brain	104	78	182	2.5
C72	Spinal cord, cranial, nerves, and other parts of CNS	3	2	5	0.0
C75	Other endocrine glands and related structures	5	2	7	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	3291	9921	7212	100.0

Table 11

Hospital based malignant NS neoplasm by site and sex - 2013					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	2	2	4	0.0
C69	Eye and adnexa	18	23	41	0.4
C70	Meninges	4	13	17	0.1
C71	Brain	118	99	217	2.4
C72	Spinal cord, cranial, nerves, and other parts of CNS	7	9	16	0.1
C75	Other endocrine glands and related structures	2	3	5	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
**	Total cancers of the yrs.	4011	4718	8729	100.0

Table 12

Hospital based malignant NS neoplasm by site and sex - 2014					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	3	2	5	0.0
C69	Eye and adnexa	56	50	106	1.1
C70	Meninges	10	13	23	0.2
C71	Brain	119	83	202	2.2
C72	Spinal cord, cranial, nerves, and other parts of CNS	4	10	14	0.1
C75	Other endocrine glands and related structures	1	5	6	0.0
C76	Other ill defined site of head, face & scalp	NA	NA	NA	NA
	Total cancers of the yrs.	4014	5022	9036	100.0

Table 13

Hospital based malignant NS neoplasm by site and sex - 2015					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	2	5	7	0.0
C69	Eye and adnexa	38	22	60	0.6
C70	Meninges	9	16	25	0.2
C71	Brain	137	108	245	2.5
C72	Spinal cord, cranial, nerves, and other parts of CNS	11	4	15	0.1
C75	Other endocrine glands and related structures	6	5	11	0.1
C76	Other ill defined site of head, face & scalp	75	66	141	1.4
	Total cancers of the yrs.	4483	5235	9718	100

Table 14

Hospital based malignant NS neoplasm by site and sex - 2016					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	4	0	4	0.03
C69	Eye and adnexa	42	17	59	0.58
C70	Meninges	8	12	20	0.19
C71	Brain	174	105	279	2.75
C72	Spinal cord, cranial, nerves, and other parts of CNS	13	3	16	0.01
C75	Other endocrine glands and related structures	1	3	4	0.03
C76	Other ill defined site of head, face & scalp	53	40	93	0.91
	Total cancers of the yrs.	4697	5420	10117	100

Table 15

Hospital based malignant NS neoplasm by site and sex - 2017					
ICD-10	Topography	Sex		Total	
		Male	Female	#	%
C47	Peripheral nerves and autonomic nervous system	4	3	7	0.08
C69	Eye and adnexa	21	20	41	0.38
C70	Meninges	11	11	22	0.21
C71	Brain	132	108	240	2.28
C72	Spinal cord, cranial, nerves, and other parts of CNS	4	7	11	0.10
C75	Other endocrine glands and related structures	4	3	7	0.06
C76	Other ill defined site of head, face & scalp	39	35	74	0.70
	Total cancers of the yrs.	4939	5577	10516	100

Discussion

In this retrospective study of malignant nervous system neoplasm, presently incorporating twelve hospitals of the nation where cancer being diagnosed and treated. Many NS tumor treating hospital are missing. So NS tumor registry data coverage may not represent whole country, only reflect the NS tumor burden of co-action hospitals only. Whereas, it can be assumed as a near most tumor burden of Nepal.

The total case of malignant nervous system neoplasm cases were collected from major cancer treating hospitals of the nation. Repeated cases were verified by name, age, sex, address, topography and morphology and deleted from data base whereas, n=3 non- Nepalese cases excluded and only Nepalese cases were coded as per ICD-O 3rd and ICD-10 published by IARC/WHO. Malignant brain tumor

were the first leading cancer site followed by eye & adnexa.

IV. CONCLUSION

A national level data base is very important for the study, plan and manage the nervous system tumor. We are presently incorporating 12 hospitals where cancer is being treated. Many nervous system tumor treating hospitals and departments are missing; therefore presently we can not give a national scenario of nervous system tumors. We need a brain tumor or nervous system tumor registry incorporating all the neuro hospitals, neurological and neuro surgical department operating.

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