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Brain Tumor Mortality Assessment in Pregnant Women in Iraqi Patient

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Abstract: This paper aims to Brain tumor mortality assessment in pregnant women and patients' vital status in patients Iraqi with a study period was (8 months from 12-5-2021 to 1-2-2021). Information and demographic data were collected from different hospitals in Iraq, and in this study, 40 patients were collected; they were classified into two groups according to the appearance of symptoms (brain tumor during pregnancy in 20 cases and pregnant after diagnosis in 20 cases), which included ages ranging from 20 to 40 years. The statistical analysis program IBM Soft SPSS 25.0 was relied upon for the purpose of knowing the true value and the arithmetic mean to the ages of patients, in addition to the distribution method used for patients in this study. Mortality was for eight patients with 40%, with patients diagnosed during pregnancy, and alive for 12 patients with 60%, and the same was the case for patients who became pregnant after diagnosis. In this study, a statistically significant relationship was found between the type of treatment used to remove the brain tumor and the death rate, where a statistically significant relationship was found between the type of treatment and death rate at a p - value < 0.05.

Keywords: Brain, Tumour, Pregnancy, Diagnosed, Patients, Treatment, Mortality.

INTRODUCTION

Brain tumor in a pregnant woman is not uncommon, but it is one of the most difficult problems for both the patient herself and the developing fetus [Pantelis, E. *et al*., 2016] and often requires strict individual decisions. The combination of pregnancy and BT [Poisson, M. *et al*., 1983], according to world literature, is rare. The frequency of this pathology ranges from 1 in 1,000 to 1 in 17,500 births [Rodríguez-Uranga, J.J. *et al*., 2003]. The course and outcome of brain tumors during pregnancy, in most cases, is unfavorable, and maternal mortality among these patients reaches 24.3% [Roelvink, N.C. *et al*., 1987; Rønning, P.A. *et al*., 2016; Schlenska-Lange, A. *et al*., 2008]. In the structure of metastatic brain lesions, breast cancer (BC) is second only to lung cancer and occurs in 10-16% of cases. [Smith, K.C, 2010; Stevenson, C.B. *et al*., 2005]. According to the literature [Swensen, R. *et al*., 2002], pregnancy after radical surgery for breast cancer is possible, especially if pregnancy occurred 2-3 years after treatment. [Terry, A.R. *et al*., 2012]

Few studies have been published on BT during pregnancy in which the prognosis has been found to worsen survival and significantly reduce the patient's quality of life [Tewari, K.S. *et al*., 2000]. Currently, there are no multicenter randomized trials, or recommendations regarding the timing of the operation, with the use of radiotherapy and chemotherapy during pregnancy in patients with BT [Marcos, H.B. *et al*., 1997].

The development of clinical manifestations of a brain tumor during pregnancy is explained by endocrine glands, electrolytes, hemodynamic and other changes that cause sodium and water retention in the body and increased intracranial pressure [Spencer, J.A. *et al*., 2000; Kanal, E. *et al*., 2007; Tremblay, E. *et al*., 2012]. Attaching the placenta as a powerful hormonal organ can be a stimulator of tumor growth. Signs of a brain tumor in early pregnancy are often mistakenly interpreted as manifestations of early toxicosis, and visual impairment in the second half is preeclampsia [Winger, M.J. *et al*., 1989; Kurwale, N.S. *et al*., 2011]. In the second half of pregnancy, the severity of the clinical manifestations of the tumor increases due to the increase in the size of the tumor itself and because of edema and swelling of the marrow associated with impaired cerebrospinal fluid and blood circulation [Frantzen, C. *et al*., 2012]. There is evidence in the literature that pregnancy can stimulate the growth of meningiomas and gliomas. Tumors most likely to develop rapidly during pregnancy include vascular tumors [Lusis, E.A. *et al*., 2012]. The management of these patients is still a matter of debate as the treatment approach varies and depends on tumor type, location, surgical accessibility, tumor size, growth rate, presence of elevated ICP, the severity of tumor symptoms, gestational age of the fetus,

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and patient desire and is determined by a consultation multidisciplinary. [Dolecek, T.A. *et al*., 2012]

MATERIAL AND METHOD

Patient Sample

Information and demographic data were collected from different hospitals in Iraq, and in this study, 40 patients were collected; they were classified into two groups according to the appearance of symptoms (brain tumor during pregnancy in 20 cases and pregnant after diagnosis in 20 cases), which included ages ranging from 20 to 40 years.

Study Design

Through cooperation with the hospital for purpose of obtaining information in the electronic record of patients (pregnant women diagnosed with a brain tumor), where 40 cases were diagnosed according to the time of symptoms onset.

The primary information and demographic characteristics related to the patients were collected, which included (age, body mass index, weight, height, tumor characteristics, and location, in addition to the results, obtained, date of death, and follow-up).

The statistical analysis program IBM Soft SPSS 25.0 was relied upon for the purpose of knowing the true value and the arithmetic mean to the ages of patients, in addition to the distribution method used for patients in this study.

Study Period

The required approvals were obtained to conduct this study and collect demographic information about pregnant patients diagnosed with brain tumors. The total study period was (8 months, from 12-5-2021 to 1-2-2021).

Aim of Study

This paper aims to Brain tumor mortality assessment in pregnant women and patients' vital status in Iraqi patients.

RESULTS

Table 1: Results of patients according to age

Statistics			
		Age during	**Age after**
N	Valid	20	20
	Missing	0	0
Mean		31.0500	29.3000
Median		28.5000	30.0000
Mode		28.00	21.00
Std. Deviation		4.96806	6.18232
Variance		24.682	38.221
Skewness		.365	-.217
Std. Error of Skewness		.512	.512
Kurtosis		-1.415	-1.534
Std. Error of Kurtosis		.992	.992
Minimum		25.00	21.00
Maximum		39.00	38.00

Table 2: Distribution of study according to Treatment

During		**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	biopsy only	3	15.0	15.0	15.0
	no treatment	6	30.0	30.0	45.0
	radiation	3	15.0	15.0	60.0
	surgery	8	40.0	40.0	100.0
	Total	20	100.0	100.0	
After	chemotherapy	4	20.0	20.0	20.0
	no treatment	12	60.0	60.0	80.0
	radiation	2	10.0	10.0	90.0
	surgery	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

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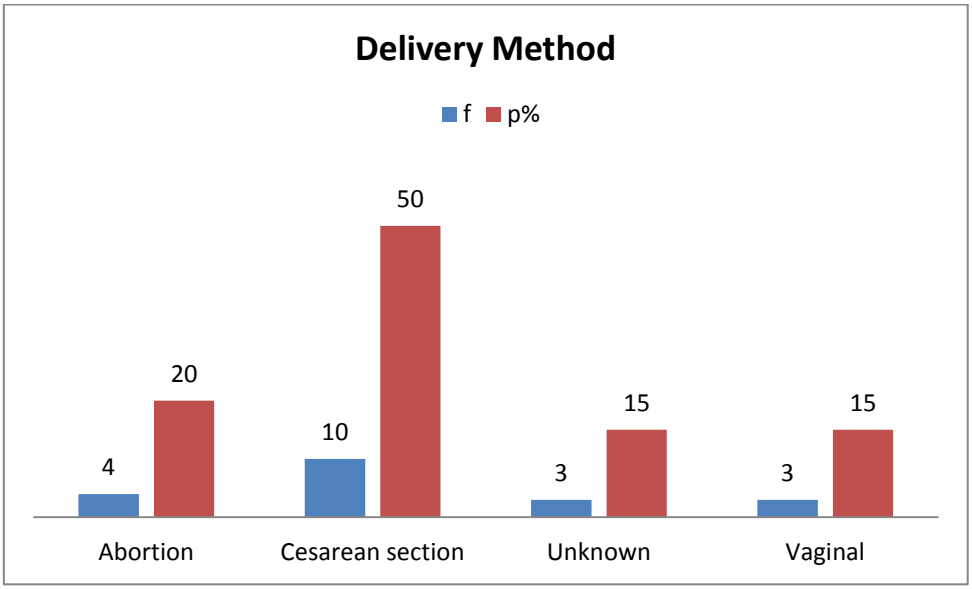

Figure 1: Distribution of patients according to delivery of the method

Table 3: Outcomes of patient study according to to follow up

Statistics			
		During	**pregnant after diagnosis**
N	Valid	20	20
	Missing	2	2
Mean		2.3300	5.8800
Median		2.5000	5.5000
Mode		2.50	4.00
Std. Deviation		1.10839	2.16031
Variance		1.229	4.667
Skewness		.052	.442
Std. Error of Skewness		.512	.512
Kurtosis		-1.343	-1.072
Std. Error of Kurtosis		.992	.992
Range		3.20	7.00
Minimum		.90	3.00
Maximum		4.10	10.00

Table 4: Mortality assessment of pregnant women patients with a brain tumor

VAR00021					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Before	During	2	9.1	9.1	9.1
	alive	12	54.5	54.5	63.6
	dead	8	36.4	36.4	100.0
	Total	22	100.0	100.0	
pregnant after diagnosis	Missing	2	9.1	9.1	9.1
	alive	12	54.5	54.5	63.6
	dead	8	36.4	36.4	100.0
	Total	22	100.0	100.0	

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Table 5: Specimen Correlations between Quality of life with treatment which used in the study

Correlations						
			Quality of life	**No treatment**	**Radiation**	**Surgery**
Spearman's rho	age before	Correlation Coefficient	1.000	-.285	.380	.055
		Sig. (2-tailed)	.	.224	.099	.819
		N	20	20	20	20
	No treatment	Correlation Coefficient	-.285	1.000	.190	.270
		Sig. (2-tailed)	.224	.	.422	.249
		N	20	20	20	20
	Radiation	Correlation Coefficient	.380	.190	1.000	-.380
		Sig. (2-tailed)	.099	.422	.	.098
		N	20	20	20	20
	Surgery	Correlation Coefficient	.055	.270	-.380	1.000
		Sig. (2-tailed)	.819	.249	.098	.
		N	20	20	20	20

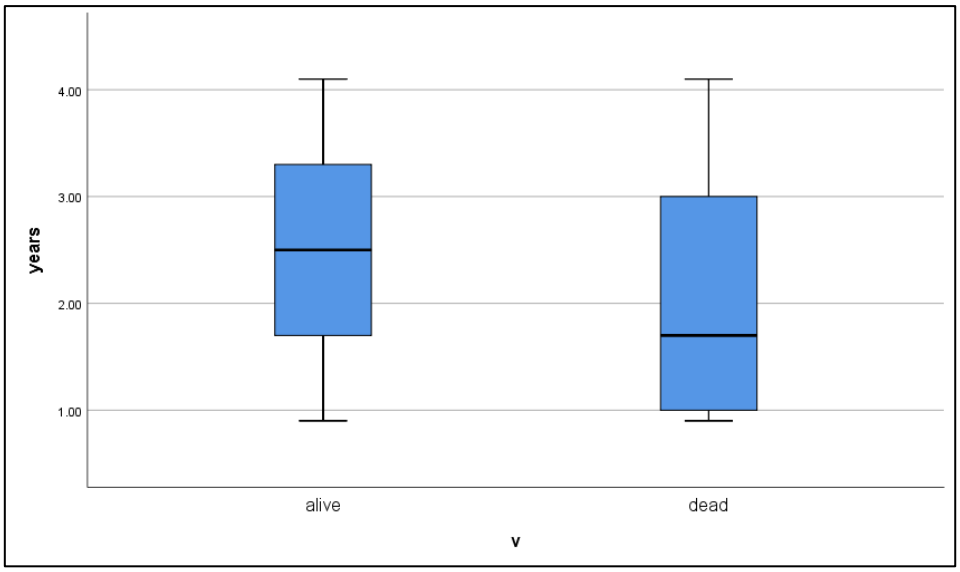

Figure 4: Correlation of Patient's vital status according to the age of follow up

DISCUSSION

In this study, 40 patients were collected, and the patients were classified according to the appearance of symptoms (20 cases during pregnancy, 20 cases of pregnancies after diagnosis) and the statistical analysis program was relied on IBM SOFT SPSS 25

In Table 1, which shows the mean value and the arithmetic mean of the age's patients (during pregnancy 31.05 ± 4.9, pregnant after diagnosis 29.3 ± 6.1).

In Table 2, which shows the Distribution of the study according to Treatment and we note the prevalence of surgery is more prevalent in the group of patients who were diagnosed with a brain tumor at conception for eight patients with 40%, and six patients were found to have not undergone treatment with 30%, and radiation, biopsy only for three patients in a row with 15%.

As for patients who became pregnant after diagnosis, 12 patients did not undergo treatment with 60%, chemotherapy for four patients with 20%, radiation for two patients with 10%, surgery for two patients with 10%.

Distribution of patients according to delivery of method in Figure 1 Caesarean section was the

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most prevalent in this study in 10 patients with 50%, followed by abortion in 4 patients with 20%.

In the table that shows pregnancy outcomes for patients diagnosed with a brain tumor during pregnancy, the healthy infant was the most prevalent in this study and was distributed according to the type of wheels used for six patients.

No treatment, biospy only for one patient, for three patients when using the treatment.

Radiation, six patients at the surgery, and overall, a healthy infant total of 16 patients.

As for patients who became pregnant after diagnosis, the results of pregnancy were as follows

(Healthy infant in 12 patients, abortion in 5 patients, malformations in 3 patients as shown in Figure 3)

The follow-up ratio in this study to group 1 was (Mean± Sd 2.3 + 1.1), as for the second group (5.8 ± 2.1), and a statistically significant relationship was found between the two groups in terms of follow-up of patients with p-value ≤0.001

In Table 4, which shows the Mortality assessment of pregnant women patients with a brain tumor.

Mortality was for eight patients with 40%, with patients diagnosed during pregnancy, and alive for 12 patients with 60%, and the same was the case for patients who became pregnant after diagnosis, and no statistically significant relationship was found between the two groups. A relationship was also found in Expulsion with a follow-up period

With the use of radiotherapy and chemotherapy during pregnancy in patients with BT. In this case, the treatment should be effective in pregnant patients with minimal risks to the fetus. Brain tumor during pregnancy is rare, with breast cancer being the most common source [6]. Few studies on BT during pregnancy have been published. Brain metastases of breast cancer, along with an increase in neurological symptoms, worsen the prognosis for survival and currently significantly reduce the patient's quality of life.

CONCLUSION

In this study, a statistically significant relationship was found between the type of treatment used to remove the brain tumor and the death rate, where a statistically significant relationship was found between the type of treatment and death rate at a p-value < 0.05.

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