
Analysis of Brain Tumors Due to the Usage of Mobile Phones

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RECEIVED ON 27.07.2015 ACCEPTED ON 16.09.2015

ABSTRACT

The impact of cellular phone radiation on human health is the subject of current mindfulness and is an outcome of the huge increase in phone usage throughout the world. Phones use electromagnetic radiation in the microwave range. The issue is associated with wireless use for 50 minutes and above. The excessive use of mobile phone may cause brain tumors. Nowadays the most commonly developed brain tumor type is GBM (Glioblastoma) in multiform and Malignant Astrocytoma. In this paper, we focus on the causes of brain tumor (cancer) due to the cell phone as this increase in glucose metabolism. The aim of the study is to address the aforementioned problems associated with the cell phone. MATLAB programming to detect a brain tumor has been used. We have conducted MRI (Magnetic Resonance Imaging) study to get the best images and results.

Key Words: Electromagnetic Radiation, Radio Frequency Radiation, Brain Tumor, Glioblastoma Multiforme and Malignant Astrocytomas.

1. INTRODUCTION

Therapeutic imaging provides important data on human health. The cells function for signs of movement to and from neighboring lasting cellular towers (base stations) utilizing RF (Radio Frequency) waves. This is an example of electromagnetic radiation that falls between the waves and microwaves FM radio. Like FM (Frequency Modulation) radio waves, microwaves, clear light, and tingling, radio waves are cases of non-ionizing radiation. They do not have enough radiation to accomplish the advancement of direct DNA (Deoxyribonucleic Acid) harm in cells.

RF waves are not the same as fortifications (ionizing) radiation, for instance, X-beams, gamma beams and UV

(Ultra Violet) radiation, which can pacify the banned substances make up DNA [1]. In bizarre status, the RF Wave scans hotness to tissues in the body. (This work is the explanation behind ovens how microwave work.) However, the levels of radiation radiated by phones are much lower, and are looking to obtain temperatures up the body. Dramatically the use of cell phone has spread in many countries since the sooner than expected from the mid-1980s [1].

Ahead of schedule in the 1990s, exposure to low levels of RF electromagnetic fields has dangerous consequences for wellbeing, which is basically inspected by a few specialists in meetings and examination requirements

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conceivable impacts being antagonistic versatile telephony [2]. Radiation is the downloading of energy from any source. The X-ray is the great sign of radiation still light originating in the sun and heat is always moving our bodies sharp. Radiation comes across a range of high energy “of high energy” low-energy radiation “low energy” radiation. It is suggested in the same way as a measure of electromagnetic radiation and gamma radiation are radiation representing high energy [2,3], that the times have enough vitality to force an electron from (ionize) an atom. This can harm the DNA inside of cells, which can perceive progress. RF radiation is at the low end of the electromagnetic imperative accomplished and is a sort of non-ionizing radiation. Non-ionizing radiation is adequate to move the particles in an atom that vibrate around or bring about essentiality; however, it is insufficient to ionize (forcing charged particles, for instance, electrons). RF radiation has a greater centrality to a remarkable degree under electromagnetic radiation, the essentiality even lower than some distinct genres of non-ionizing radiation in the same course as recognizable and infrared light. Ionizing radiation primarily has a higher energy [4]. On the off chance that radio frequencies are ingested in sufficient gigantic added by materials containing water, for that matter, strengthening, body fluids and tissues, it can be hot.

This can instigate blasts and harm tissue. Regardless of how RF radiation does not understand change-harming DNA in cells of ionizing radiation clears a path, there has been tension that a few signs of non-ionizing radiation can have general impacts that could perceive tumor in a few circumstances [5]. Hence, the IARC (International Agency for Research on Cancer) invigorated legitimacy considered in 1998 and 1999, which provides an overview of the relationship between employment and PDAs (Personal Digital Assistant) threatening brain tumors would be possible and

enlightening. Intervention was transferred later as a general course of action studies and controls focus on different types of tumors in tissues that most RF centrality launched by phones are set: brain tumors (glioma) [5]. The objective was to understand whether the use of cells extends the danger of these tumors and whether the energy transmitted by RF remote control is carcinogenic. This document clarifies the deferred examination results of brain tumor risk in relation to the use of the phone at all Interphone studies focuses consolidated. Investigations of brain tumors in the new relationship with the wireless use of distinctive accomplice have spoken, including a pair of national Interphone bits. Of course; have consolidated the same number of cases discovered, especially beck and overwhelming PDA clients, as this research [6]. Treating gliomas is troublesome, yet new and test medications are expanding the time individuals who add to these cerebrum diseases can hope to survive. Presently in the research center medicines and early identification have specialists and patients discussed mending. Gliomas are cerebral tumors inferred cells called glial cells, which keep up and sustain nerve cells. Likewise, with different sorts of disease, growths of glue are grouped by sort and seriousness, however, for gliomas natural worlds “dangerous” and “amiable” have an alternate significance. A few growths of different organs are called threatening because they bring about death by spreading all through the body. Mind tumors infrequently spread along these lines. For cerebrum tumors, threatening words implies they bring about death because they develop (or repulse) quickly in the same spot where they originate from, not on account of the influence different organs. The most dangerous tumors are called GBM multiform. Less diverse look quickly developing tumors under a magnifying lens and are called aplastic astrocytoma. The third sort is benevolent astrocytomas. Another approach to qualify is numbering

tumors: Grades 1 and 2 are generous; albeit to becoming quicker than 1; Grade-3 is harmful, yet not the most exceedingly awful; Grade-4 (GBM) is the most dangerous. In another piece of the body favorable tumors can be cured by totally evacuating the tumor and, in some cases, a touch of solid tissue encompassing the tumor as a sanity check. This regularly does not work in mind tumors for two reasons: In the cerebrum, the area of the tumor frequently implies that even benevolent tumors can't be uprooted without unsatisfactory harm to the patient. These tumors additionally penetrate typical mind tissue; if all the influenced cerebrum tissue is evacuated, the individual would endure genuine neurological harm, so the cure is as awful as the malady. Along these lines, "kind" cerebral tumors regularly mean reparable, however, just the tumor development will be slower. Patients can live for a considerable length of time with benevolent gliomas, dangerous astrocytomas and GBMs. However, they are normally deadly within two years of treatment and frequently inside of weeks if left untreated [7].

2. LITERATURE REVIEW

As we understand that the gauge of vitality RF seen from the telephone in the customer's body is known as particular ingestion rate SAR (Specific Absorption Rate). Telephones have unmistakable particular levels of SAR. Remote designers are obliged to report the most elevated amount of SAR stuff to the FCC (Federal Communications Commission). This solid information can be found on the maker's site or the customer for your telephone manual. The best remote extends of SAR are allowed in the United States is 1.6 W/kg (watts every kilogram) of body weight. Notwithstanding, as per the FCC SAR qualities separating between telephones can be deluding. The SAR quality is built in the light of the working phone in its most conspicuous power, not on

what the client is generally introduced to the utilization of standard phone. The genuine estimation of SAR between changes being used around centered on a few variables, so it is possible that a telephone with a lower SAR enrolled quality can truly open a person to RF radiation than one with a most elevated SAR worth enlisted as a rule. The level of RF vitality waves is bearably low, particularly when separated and kind of radiation known not danger of contamination, for instance, light emissions beams, X-rays and marvellous UV radiation. The vitality of the RF waves transmitted by remote towers is deficient to break the obligations of DNA particulate substances that are the manner by which solid signs that this radiation may bring about the ailment [7].

A second issue needs to do with the wavelength. RF waves have longer wavelengths, which ought to be focused for around maybe a couple of crawls in size. This makes it suspicious that the vitality of RF waves may be thought adequate to influence individual cells in the body and the third is, paying little personality to the probability of RF waves were arranged by a few routines to affect the cells in the body at as far as possible, the level of the RF waves present at ground level is well underneath the least degree that is conceivable.

The levels of the vitality of the RF waves close cell towers are not novel done in connection with the levels of advancement of RF radiation in urban territories from distinctive sources, i.e. Radio Station TV [8]. In the event of accommodation of RF utilization PDA mounts the risk of tumor, would be a concern. The presentation of mobile accumulates in the head near the headset, high respectable presentation is only for global and meningeal tissue closest to the surface of the head, parotid body and the vestibular bundle of the eighth cranial nerve neuromas arise where acoustic [7,8]. Six studies have inspected the relationship between cell phone use and acoustic neuroma, with results that collide [8].

All studies open are bound by both number of cases detected and a short catch up after the first hand once cells had the opportunity to be available. This study examines the long-term buyers, which is input to the probability of obtaining any prolonged tumor risk associated with using cell joint agreement. The present study is a bit of focus on INTERPHONE, a synergistic comprehensive review of case control new brain tumors, acoustic neuroma and organ parotid tumors in association with the use of cells. According to the National Cancer Institute, researchers from nations around the world worldwide studies conducted throughout the 2000s to find out if there is an association between the utilization of cell phones and tumor. From auditing the consequences of such studies, researchers assumed that telephone customers have a slightly wooded create disease brain glioma and risk tumors. As indicated by the Mayo Clinic, glioma cancer occurs when tumors known as gliomas created in the mind tissues or spinal cord. Gliomas, as indicated by the Society for Neuroscience, download destructive measures, excessive glutamate, and neurotransmitters. These many glutamates interact with brain cells covering the running neurotransmitter cells, thereby destroying brain tissue. One of these studies with results that discredit the probability of being the cell phone radiation causes cancer is the Interphone study, which was conducted by a meeting of experts from 13 countries. As indicated by WHO Interphone scientists observed 2,708 cases of the disease of mind glioma tumors benevolent layers covering the brain. Scientists consider the welfare and use of mobile phones of members of the study to find out if there is a relationship between the introduction of a unique radiation cell phone and similarity from one to create glamorous there. These researchers assume that the use of cells of a human being does not build its explosion to create disease. As indicated [9,10], mobile phones cause electromagnetic fields, there is motivation to accept that they may be causing brain cancer,

one of the essential organs with which the cells are in close contact. The electromagnetic radiation emitted by cell phones escape as non-ionizing, meaning that radiation does not eliminate the molecules of their electrons. As stated by the National Cancer Institute, tissues were closer phone; radio ingests high radiation from a cell phone. A 2009 study distributed by the US Support and Drug Administration showed that when people use a cell phone from above than usage of 50 minutes, glucose is metabolized much more quickly in tissues stained by about cell phone wire receiving brain than the more distant tissues away [9].

The way that non-ionizing radiation radiated by mobile built glucose uptake in brain cells seen near the position of the cell phone further validates the assertion that the cell phone could be a brain tumor prompt insurance because cell phone radiation changes the action of cells in the brain with admiration. Any tumor that emerges from glial (Greek for “paste”), or strong tissue of the cerebrum is known as a “glioma” [10]. One sort is astrocytoma glioma. Astrocytomas are named after the atrocities, star- formed cells from which they develop. Astrocytomas are balanced to depict their level of irregularity. The most well-known characterization framework utilizes a size of I-IV. Tumors can likewise be assembled by their development rates: second rate (moderate developing), half year (moderate) and high review (quick). On this scale, glioma Grade-1 is viewed as favorable unequivocally in that finish surgical extraction is viewed as corrective.

These tumors, then again, only analyzed in early stages. Grade-2 gliomas frequently called “low quality” as “generous” mark does not mirror the basic inclination of these tumors repeats. Numerous patients with Grade-3 gliomas are doing an injury to be said that their tumors are considerate. Patients with Grade-2 gliomas oblige serial observing by MRI or CT (Computed Tomography)

sweep to screen tumor repeat. The expressions “dangerous flame” and “high-review glioma” incorporate both Grades-3 and 4 gliomas and mirror the way that the administration of these tumors is truly comparable, with some critical special cases. “Anaplastic” means malicious [11]. An anaplastic astrocytoma is a tumor Grade-3 or moderate and diffusely invading neoplasm demonstrating central or scattered one-place and a higher rate of development contrasted and Grades-1 and 2 astrocytoma. The histological determination is in light of atomic atypia and mitotic movement. The GBM multiform such as “complex” is no mere piece of the assignment of whom, even though GBM still regularly shortened “GBM” is the most elevated tumor-grade glioma (Grade-4) is the most threatening type of astrocytoma, and it is synonymous with Grade-4 glioma. Recognizing histologically highlights GBM for every single other evaluation are the vicinity of putrefaction (dead cells) and expanded veins all through the tumor [13,14]. Grade-5 tumors are dependably quickly developing and exceptionally threatening tumors. In this new period, atomic markers have been investigated seriously to defeat the limit in the histopathological conclusion of gliomas. Quality expression profiling has prompted new examples of atomic order. This arrangement by quality expression profiling has additionally uncovered atomic classes missed by customary systems for taking a gander at tumor tests under a magnifying lens.

Methylation methyltransferase quality promoter methyguanine (MGMT) has been found to foresee a more drawn out survival length, and a man’s reaction to certain chemotherapeutic specialists in the treatment of GBM. Around 50% of gliomas are GBMs. They are more regular in grownups matured 45-65, and influence a larger number of men than ladies. GBMs emerge from ordinary cerebrum tissue. They can attack and relocate far from the essential tumor in the mind; in any case, GBM occasionally spreads

somewhere else in the body. There are two subtypes of GBM: all over again like new or essential and auxiliary. Anew tumors emerge rapidly and tend to make their vicinity known suddenly.

They are the most widely recognized, and an exceptionally forceful type of GBM. Anew tumors speak to the dominant part of GBMs in individuals more than 55 years. Optional GBMs, regularly found in patients matured 45 and more youthful, typically start as poor quality or mid-range grade astrocytoma that has been hereditary customized to change into harmful GBMs time of quick development. Anaplastic astrocytomas are more normal in more youthful grownups. Around 9% of youth’s mind tumors are GBMs. Researchers are creating tests that may help better distinguish these two subcategories of GBM. Somewhere around 1 and 7% of those with GBMs and around 4% of individuals with anaplastic astrocytoma it was found to have various tumors at the time of diagnosis [15-17].

3. METHODOLOGY

Medical imaging gives important data about patient health. The MRI/CT scan is one of the famous innovations over the globe; MRI is one of the best illustrations and demonstrated it has capable imaging and finding innovation.

X-ray has likewise helped us to highlight infarct morphology and stroke etiology. Siemens Corporation gives another innovation called; UHF (Ultrahigh-Field) MRI at 7T (Tesla) has been accessed for disease imaging further it indicates applicable symptomatic diagnostic benefits brain, breast cancer, tumors, cerebral abnormalities, malady and sclerosis. Presently the method for recognizing tumor by utilizing after steps:

- Determine its area in an image, (u, and v).
- Map that area with recent images $(x, y) = T\{(u, v)\}$.
- Figure out recent images pixel data with previous representation image (x, y) .
- Copy the input pixel significance to that recent picture pixel.

The genuine medicinal pictures like MRI, PET (Positron Emission Tomography) or CT checks and to take up an examination are exceptionally complex in light of protection issues and overwhelming specialized obstacles. The motivation behind this study is to pre-process mind tumor identification strategies through MRI cerebrum Images. The MRI information is obtained from the Brain Web Database and shows a sample MRI brain image. We are working on these images which are based on tumors, now we are applying segment region for tumor with due to the usage of cell phone. These images are basically represented the size of the tumor and need to calculate the size of the tumor with the help of MATLAB. In this research work, we focus on the size of tumor and calculate the area of region from first step to the last step until the growing sizes of tumor cell. There are some images of tumor, which shows the size and area of tumor, which are detected by image processing and then we are applying auto co-relation to matching the images and region of segmentation. These images show how we can recognize the size of the tumor by using MATLAB.

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The following steps are implemented by these images, which are given below:

- (i) Give MRI image of brain as input.
- (ii) Convert it to gray scale image.
- (iii) Apply high pass filter.
- (iv) Apply median filter to enhance the quality of image.
- (v) Threshold segmentation.
- (vi) Region of segmentation
- (vii) Auto correlation
- (viii) Finally output will be a tumor region.

Fig. 1 shows the original image of tumor which is apply the techniques through MATLAB programming and simulation process and also the graphical representation after the programming as you can see that the second image of tumor which is more prominent the area of tumor as compared to previous image. This is basically initial stage of tumor which is appearing in Fig. 1.

Fig. 2 shows the original image of tumor which is being collected by during the survey then we are applying the techniques through MATLAB programming and simulation process and the graphical representation also you can see that the image-2 shows the growing stage of tumor with also increasing size of tumor. Fig. 2 shows the area of size with enhance the quality of image.

Fig. 3 shows the original image of the tumor which is being collected during the survey then we are apply the techniques through MATLAB programming and simulation process and the graphical representation also you can see that the image-2 shows the growing stage of

tumor with also increasing size of tumor. Fig. 3 shows the area of size with enhance the quality of image.

Fig. 4 shows the growing stage of the tumor which is enhanced the skull. It is also an example of previous image in Fig. 3 but the difference between the both images is initial and middle age of tumor which is appeared in Fig. 4.

Fig. 5 shows the image of tumor with graphical representation. As you can see the given image shows the huge area of tumor which is detected by programming and also calculates the area of size through the specific technique of MATLAB which is mentioned in Fig. 5. Fig. 5 shows the growing condition of the tumor either it

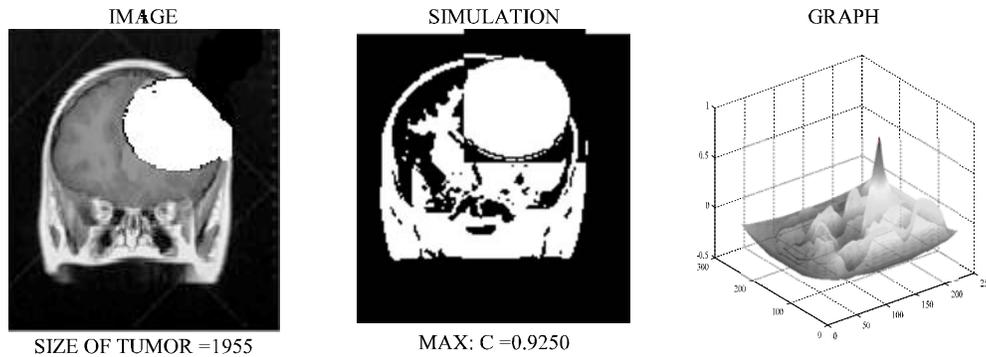


FIG. 1. DIFFERENCE BETWEEN THE ORIGINAL AND SIMULATION PROCESS IN IMAGE-1

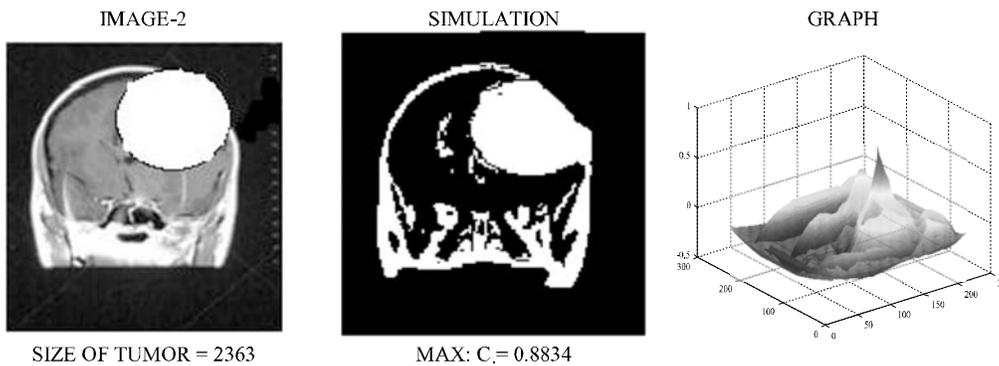


FIG. 2. IMPLEMENT THE TECHNIQUES THROUGH MATLAB

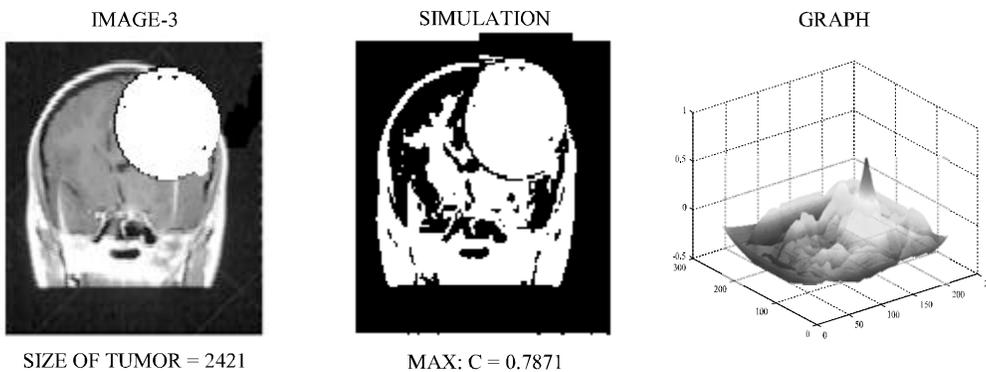


FIG. 3. GROWING STAGE OF TUMOR

appears clearly but still spreads out over the whole skull rapidly.

Fig. 6 shows that the effective area of the tumor which is large sizes of tumor and rapidly increases the size of tumor as you can see that the second image of tumor which is

being cleared as compared to the original image. These images show the condition of the tumors with different sizes and we apply different techniques through MATLAB programming which is covered by different succeed key point of MATLAB and as these are also mentioned in Fig. 6.

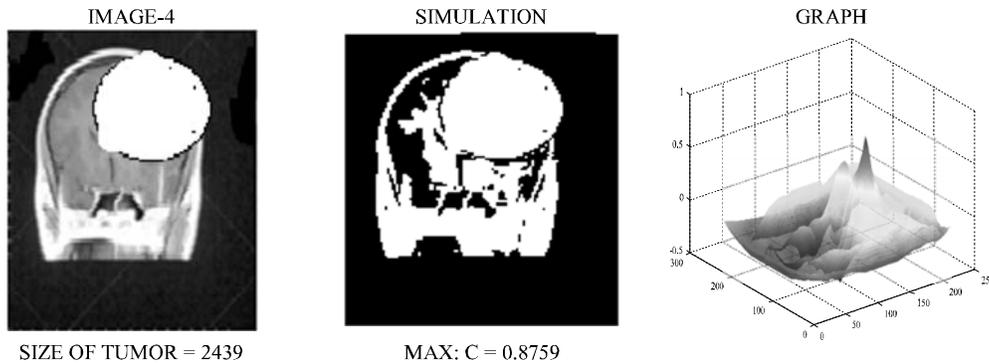


FIG. 4. MIDDLE AGE OF TUMOR

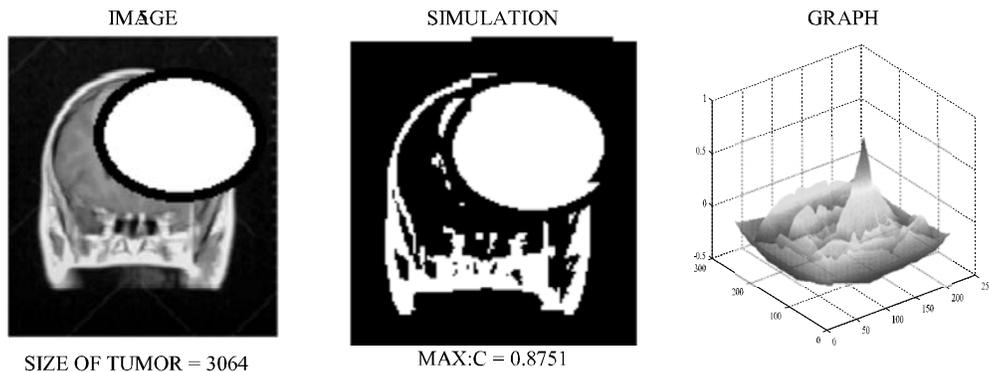


FIG. 5. HUGE AREA OF TUMOR

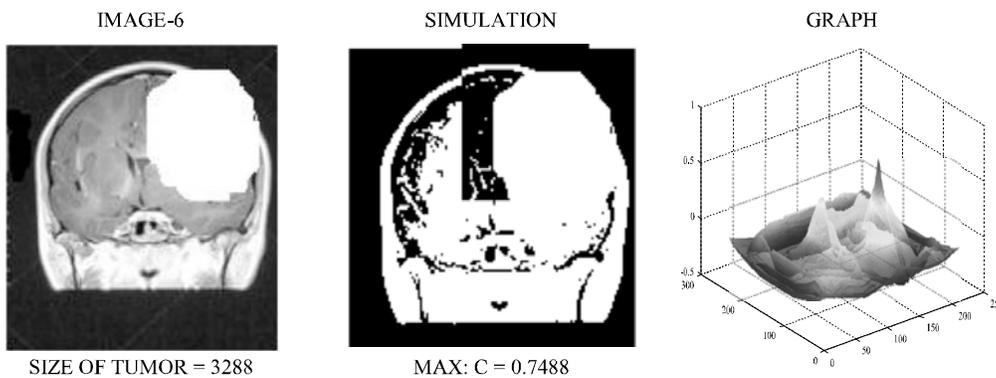


FIG. 6. EFFECTIVE THE SKULL AREA OF TUMOR WHICH IS APPEARED CLARITY

As you can see that the images of brain tumor, these images are already mentioned and located to the area of tumor with size after using MATLAB. We used some different techniques for these images and simulated the images then applied autocorrelation method. The reason behind the using of autocorrelation method is match the sample/images of original images and after applying the simulation process of images and also differentiate the images. These all images are belonging to GBMs tumor which is mostly created by the usage of mobile phone and also generate at the age of teenager. As we can easily differentiate our work to previous work due to the usage of multiple technique at the same time which is one of the success key point of this research work. As you can see that the given algorithm of detection of tumor size to show the techniques applying in these images.

4. ALGORITHM FOR DETECTION OF SIZE AND AREA OF TUMOR

Step-1: Load Dicom Images I_1 (MRI)

Step-2: Get Image (MxN)

Step-3: Load Dicom Images I_2 (MRI)

Step-4: Get Image (MxN)

Step-5: Select ROI of I_1 & I_2

Step-6: Save $MI_1 := I_1$ and $MI_2 := I_2$

Step-7: Applying FILTERS

7.1 Gaussian Filter to un sharp

$$h_g(n_1, n_2) = e^{-\frac{(n_1^2 + n_2^2)}{2\sigma^2}}$$

$$h(n_1, n_2) = \frac{h_g(n_1, n_2)}{\sum_{n_1} \sum_{n_2} h_g}$$

4.1 Applying Multidimensional Image Filtering

$$\frac{1}{(\alpha + 1)} \begin{bmatrix} -\alpha & \alpha - 1 & -\alpha \\ \alpha - 1 & \alpha + 5 & \alpha - 1 \\ -\alpha & \alpha - 1 & -\alpha \end{bmatrix}$$

Save $MI_{1Filtered} = MI_1$ and $MI_{2Filtered} = MI_2$

Step-8: Compare Filtered Images with Original Images

Img1 =img subtract ($MI_{1Filtered}$, I_1)

J1 = Inverse (Img1);

SHOW Image (J1)

SHOW Image (I_1)

And

Img2 =image subtract ($MI_{2Filtered}$, I_2)

J2 = Inverse (Img2);

SHOW Image (J2)

SHOW Image (I_2)

Step-9: LOOP

SAVE $MI_{1Filtered}$ and $MI_{2Filtered}$

ImageDiff =image subtract ($MI_{2Filtered}$, $MI_{1Filtered}$)

ExactDiff =MAP (ImageDiff, $MI_{2Filtered}$)

REM: How much change at bit level

CALCULATE

Result=Number of Non Zero (ExtDiff)

CALCULATE PERCENTAGE

[M, N]= Size of Img(Result)

Percent= (Result/ (M*N))*100

ELSE

SAVE I_1 and I_2

ImageDiff =image subtract (I_2 , MI_1)

ExactDiff =MAP (ImageDiff, I_2)

REM: How much change at bit level

CALCULATE

Result=Number of Non Zero (ExtDiff)

CALCULATE PERCENTAGE

[M, N]= Size of Img (Result)

Percent= (Result/ (M*N))*100

Step-10:

SHOW IMAGES

CALCULATE the difference.

As we have worked on brain tumor due to the usage of cell phone, now, day by day the technology has become fast and grown rapidly. In this paper, we compared the previous technology work and our work which is mentioned in the paper as you can see that my research paper is based on MATLAB programming, simulation, image processing, region of interface, area of region and autocorrelation. All of these technologies cannot be used at the same time and our paper motivation is the detection of a tumor which is created by a cell phone. So, we applied multiple techniques in this paper at the same time as compared to previous technology all techniques are not used at the same time and this is one of the key points of this research work.

5. LIMITATIONS

In the end I don't feel small to pin point certain restrictions and limitations. Due to the lack of time, and limited survey samples could be taken from cancer society and different hospital surveys. This research is a hospital based survey and struggles to collect the data after utilizing a possible effort.

6. RESULTS AND DISCUSSION

Cell phones use electromagnetic radiation in the microwave range. Other computerized wireless systems, for example, information, correspondence systems, produces comparable radiation. For the most part the issue of cell phone use, brain tissues on the same side of the head as the cell phone, radio wire metabolized more glucose than did tissues on the opposite side of the brain. In this research paper we focus on the causes of brain tumor (cancer) due to the cell phone from this increase in glucose metabolism which are still unknown. Our research area focuses on the flame which develops slowly on the brain side. There are some steps of tumor (images also mention in Figs. 1-6) which are the impact of the use of

cell phones; each stage recognizes the indication of tumor from the introductory level to top level of tumor in Fig. 1 showsthe initial condition of tumor stage and also mentions the area size of tumor which is image-1 is: 1955 (size of tumor for image-1) same like that Fig. 2 shows the growing condition of tumor which appeared in Fig. 2 which is based on MATLAB and simulated by different techniques of MATLAB with their graphical representation the size of tumor in Fig. 2 is: 2363 (size of tumor for image-2), in Fig. 3 shows the middle age of tumor which is detected by programming through the usage of software of MATLAB with their simulated process and the size of tumor in Fig. 3 is: 2421 (size of tumor for image-3), here is also shows Fig. 4 which mentions the same condition of tumor same like as Fig. 4 but the difference between the both images size are different due to the growing condition of tumor. Fig. 4 size of tumor is: 2439 (size of tumor for image-4) and Figs. 5-6 show that the huge area of tumor which is effective by the skull. The difference between the conditions of Figs. 5-6 is: Fig. 5 shows the huge area of tumor which is effective by the skull but Fig. 6 shows the last stage of tumor which is affected by the skull but it is not growing condition of tumor. The tumor size of Fig. 5 is: 3064(size of tumor for image-5) and Fig. 6 is: 3288 (size of tumor for image-6).

In this research work, we were working on tumor and its growing size and calculating the area of a regional segment by selecting different size of tumors by using image processing and autocorrelation with the help of MATLAB. Basically, the use behind the technique of autocorrelation is that we are measuring the images of brain tumor, which are collected for the survey of hospital and match the previous images in step 1,2 and 3 for finding the area and size of tumor that can be detection of tumor. One thing more identifying the condition of tumor is that we can easily understand the recondition stage of brain tumor with the help of image processing and

autocorrelation. We are applying a high pass filter and a median filter to enhance the quality of the image. The side effect of radio wave frequency cell phone is growing step by step in that time, when you are using a continuously cellphone (approximately 5-10 year). These steps indicated the size and define the age of the tumor, then how many years/months/weeks people survive life with tumor. So, in this research work as we are applying MATLAB for image segmentation, to find out the size of tumor, which is developed through cell phones as we also know the harmful effect of a cell phone.

Brain tumors are now increasing day by day due to the usage of cell phones. Especially smart phones, we are working on image segmentation and region of interfaces for knowing the sizes of tumor, which is based on this research work by using the different images of skull, which we have to detect the tumor sizes, then we are applying the mapping function and also use autocorrelation for knowing the actual figures of brain tumor. The quality, reliability, and repeatability of the parameters obtained through simulation are based on programming through the use of MATLAB software. The reason behind the use of these techniques is to maintain and clear the images of tumor size and their applying process. Our motive area is to analyze the images of a given brain tumor, which is collected by different surveys of hospitals. As compared to previous work; we are applying so many techniques at a time and generating the result. In this research work, we are focusing on the tools of MATLAB. We have tested 15 plus samples of frequency and also applied autocorrelation. Brain tumors are the main area of our research and accuracy is the main tool of success that's why this study proposes MRI to get the best images and best results. This research depicts brain tumors and shows the results of our newly proposed algorithm which is based on the function of MATLAB.

7. CONCLUSION

The reason behind this study is to use a brain tumor location system through MRI cerebrum images. The MRI data are obtained from the Brain Web Database and shows a sample MRI brain image. In this research paper, we were working on these images which are based on tumors, applying segment region for tumor due to the usage of cell phones. These images basically represent the size of the tumor and need to calculate the size of the tumor with the help of MATLAB. In this research work, we are focusing on the size of tumor and calculate the area of region from first to last step until the growing sizes of a tumor cell. By using a different MATLAB tool we have tested samples of frequency and also applied autocorrelation. Brain tumors are the main area of our research, accuracy is the main tool of success, which is why this study proposes MRI to get the best images and best results. This study depicts the brain tumor utilizing picture division of mind tumor among the MRI pictures and demonstrates the outcomes by our recently proposed calculation. The reason for this study is to cerebrum tumor location systems through MRI Brain Images.

ACKNOWLEDGEMENTS

The authors are grateful to the Department of Computer Science & Information Technology, Institute of Business & Technology, Karachi, Pakistan, and Dr. Ziauddin Hospital, Karachi, for such kind help in collecting different samples of tumors.

REFERENCES

- [1] Vovk, U., Pernu, F., and Likar, B., "Simultaneous Correlation of Intensity in Homogeneity in Multichannel MR Images", 27th Annual Conference on Engineering in Medicine and Biology, Volume 2, No. 3, pp. 4290-4293, New York, 2011.

- [2] Weisenfeld, N.I., and Warfield, S.K., "Normalization of Joint Image-Intensity Statistics in MRI Using the Kullback- Leibler Divergence", IEEE Symposium on Biomedical Imaging: Nano to Macro, Volume 1, No. 2, pp. 101-104, 2014.
- [3] Madabhushi, A., and Udupa, J.K., "Interplay between Intensity Standardization and in Homogeneity Correction in MR Image Processing", IEEE Transactions on Medical Imaging, Volume 24, No.1, pp. 561-576, Maxico, 2005.
- [4] Padmavathi, G., Kumar, M.M., and Thakur, S.K., "Non-Linear Image Segmentation Using Fuzzy C-Means Clustering Method with Thresholding for Underwater Images", International Journal of Computer Science, Volume 7, No. 9, May, 2010.
- [5] Mancas, M., Gosselin, B., and Oacq, B.M., "Segmentation Using a Region Growing Thresholding", Journal of Computer Science, Volume 2, No. 2, pp. 125-128, Taiwan, 2012.
- [6] Logeswari, T., and Karnan, M., "An Improved Implementation of Brain Tumor Detection using Segmentation Based on Soft Computing", Journal of Cancer Research and Experimental Oncology, Volume 2, No. 1, pp. 6-14, USA, March, 2010.
- [7] Deng, W., Xiao, W., Pan, C., and Key, J.L., "MRI Brain Tumor Segmentation Based on Improved Fuzzy C-Means", Journal of Image Processing and Intelligence Control Institute for Pattern Recognition and Artificial Intelligence SPIE, Volume 7497-7480, No. 4, pp. 38-42, Hongkong, 2009.
- [8] Lam, K.P., "Towards a Practical Differential Image Processing Approach of Change Detection", Proceedings of Innovative Algorithms and Techniques in Automation, Journal of Industrial Electronics and Telecommunications and Mathematics, Volume.2, No. 3, pp. 229-234, UK, 2007.
- [9] Bradley, S.T., "Aspects of Kolmogorov Complexity: The Physics of Information", Journal of Information Science & Technology, pp. 63-72, Para1, 2010.
- [10] Mohandass, D., and Janet, J., "An Improved Three Pattern Huffman Compression Algorithm for Medical Images in Telemedicine's", Proceedings of Information Processing and Management, Journal of Systems and Applications, pp. 263-268, Springer Berlin Heidelberg, 2010.
- [11] Higham, D.J., and Higham, N.J., "MATLAB Guide", International Journal of Image Processing, Volume 2, No. 1, pp. 122-125, Malaysia, 2005.
- [12] Coombes, K.R., Hunt, B.R., Lipsman, R.L., Osborn, J.E., and Stuck, G.J., "Differential Equations with MATLAB", Journal of Image Processing & Pattern Recognition Progress, Volume 21, No. 2, pp. 328-335, USA, 2000.
- [13] Elder, J.A., and Chou, C.K., "Auditory Response to Pulsed Radiofrequency Energy", Journal of Bioelectromagnetics, Volume 12, No. 1, pp. 62-73, Malaysia, 2003.
- [14] Boniol, M., Autier, P., Boyle, P., and Gandini, S., "Cutaneous Melanoma Attributable to Sunbed Use: Systematic Review and Meta-Analysis", Journal of Science & Engineering, Volume 4, No. 2, pp. 345-350, Belgium, July 24, 2012.
- [15] Gandini, S., Sera, F., Cattaruzza, M.S., Pasquini, P., Picconi, O., Boyle, P., and Melchi, C.F., "Meta-Analysis of Risk Factors for Cutaneous Melanoma: II, Sun Exposure", Journal of Cancer, Volume 41, No. 11, pp. 45-60, London, 2005.
- [16] Lauby-Secretan, B., "American National Standards Institute, American national Standard Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields, 300-100 GHz", Digital Image Processing and Pattern Recognition, Volume 3, No. 1, pp. 53-58, New York, 1982.
- [17] Baan, R., Grosse, Y., El-Ghissassi, F., Bouvard, V., Benbrahim-Tallaa, L., Guha, N., Islami, F., Galichet, L., and Straif, K., "WHO International Agency for Research on Cancer Monograph Working Group", Journal of Carcinogenicity of Radiofrequency Electromagnetic Fields, Lancet Oncol, Volume 12, No. 7, pp. 624-626, Japan, July, 2011.