Abstract

Introduction: Cervical cancer is considered the third most common gynecological malignancy in women. Although patient now survive longer due to radiation therapy and more effective chemotherapy, it remains the most frequent cause of death for women in developing countries.

Aim of the Work: To highlight the role of magnetic resonance spectroscopy in the diagnosis of uterine cancer cervix.

Methodology: Cervical cancer is both the fourth most common cause of cancer and the fourth most common cause of death from cancer in women and in Egypt Cervical cancer ranks as the second most frequent cancer among women. Functional MRI is becoming established in the evaluation of gynecologic malignancies including uterine cervical malignancies. Parameters derived from functional MRI may be used toexamine tumor vascularity Tissue micro architecture, hypoxic status and metabolic profile features that may be Exploited for tumor characterization , staging and response to treatment.

Conclusion: MRS has lower sensitivities and requires much longer acquisition times and more complex data processing, and with clinicians unfamiliar with the technique, these factors continue to limit the application of MRS in the clinical setting. Currently, there are methodologies that optimize the combined signals from multi element coil arrays to improve detection of low concentration metabolites in MRS. And, in order to improve its sensitivity and spectral resolution. In addition, the availability of higher field strength MR systems can reduce some of these limitations.

Keywords: Role of MR Spectroscopy, Diagnosis of Uterine Cervical Cancer

Contents

List of Abbreviations

Abbrev.	Meaning
A	
ADC	Apparent Diffusion Coefficient
AJCC	American Joint Committee on Cancer
ATPs	Adenosine Triphosphates
B	
B0	Magnetic field
BOLD	Blood Oxygen Level Dependent
C	
CCS	Cervical Cancers
CHo	Choline
CIN	Cervical Intraepithelial neoplasia
CIS	Carcinoma in situ
Cr	creatine
CSCC	Cervical squamous Cell Carcinoma
CT	Computed Tomography
CTV	Clinical Target Volume
D	
DCE-PWI	Dynamic contrast enhanced Perfusion weighted imaging
DCE-MRI	Dynamic contrast enhanced Magnetic resonance imaging
DNP-MRS	Dynamic nuclear polarization Magnetic resonance spectroscopy
DSC-PWI	Dynamic susceptibility contrast Perfusion weighted imaging
DW	Diffusion weighted
DWI	Diffusion weighted imaging

E	
EBRT	External beam radio therapy
ED	Eddy Current
F	
FID	Free induction decay
FIGO	Federation of gynecology and obstetrics
FOV	Field of view
G	
GD-DTPA	Gadolinium Diethylene Triamine Pentaacetic Acid
GTV	Gross Target Volume
H	
1H-MRS	Proton-Magnetic resonance spectroscopy
HR-MAS	High resolution –magic angle spinning
HPV	Human Papilloma Virus
I	
IVU	Intra venous urography
L	
Lac	Lactate
LDA	Linear Discriminate analysis
LEEP	Loop Electrical excision procedure
LSIL	Low grade intraepithelial lesion
M	
Mi	Myoinositol
MRI	Magnetic Resonance Imaging
MRS	Magnetic Resonance Spectroscopy
N	
NAA	N- acetyl aspirate
NEX	Number of excitation
NMR	Nuclear Magnetic Resonance
NTP	Nuclside triphosphate
NPV	Negative predictive value

P	
Pap	Papanicolaou
PO2	Pressure of oxygenation
PCr	Phospho creatine
PET-FDG	Positron emission tomography- with Fluro- deoxy –D-glucose
Pi	Inorganic phosphate
PRESS	Point Resolved Spatially Localized Spectroscopy
31P-MRS	Phosphorus -31 Magnetic Resonance Spectroscopy
PPM	Parts Per million
PPV	Positive predictive value
PWI	Perfusion Weighted Imaging
R	
RBV	Relative blood volume
ROI	Region of interest
RF	Radiofrequency
S	
SNR	Signal to noise ratio
SCJ	Squamocolumnar junction
STEAM	Stimulated Echo Acquisition Mode
T	
tCho	Total choline
TE	Time of Echo
TR	Time of Repetition
T1W	T1-weighting; MRI sequence in which Short TR (time of repetition) And Short TE(time of echo) applied
T2W	T2-weighting; MRI sequence in which long TR(time of repetition) and long TE(time of echo) applied.

U US	Ultrasonography
V VLDL	Very low density lipoprotein

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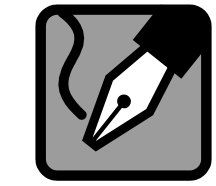

Introduction

Aim of the Work