

ID: 14245

Program = Radiology

Module = 6th semester

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$a_i - a_{i+1}$

Q10

Q10: Q10 Q10 MR Spectroscopy:

is a device which
measures the chemical
activity or metabolism
of suspected lesion.

MR Spectroscopy is
diagnostic test or
examination for meas-
uring biochemical changes
in brain study

Clinical uses:

If compare

normal and abnormal
chemical composition.

It is used in
stroke and epileptic
patient to diagnose
changes in brain.

MR spectroscopy
Differentiate several
metabolites to differe-
ntiate b/w tumors ~~and~~
types.

such as;

- lactate
- choline
- Alanine
- creatine
- lipid

Spectroscopy dete-

termine tumor varieties

and Also to show

changes in tumor

and radiation neuro-

sis.

and

Q: Ans

contrast medicine

It is a chemical substance which is used in different modalities such as in X-ray, MRI, CT and fluoroscopy for viewing internal structure of body.

We can say that contrast media is

$$= n(n+1)$$

drug such as iodine contrast media that enhance the visibility of body tissue. (GIT and blood vessels).

Different types of contrast dye are used in medical field to show internal diseases or changes.

In Radiology (Radio-
graphy) these two types
agents are used i.e;
Iodine and Barium-
iodinated contrast
media are used for
HOCM. In MRI the most
usable contrast is
Gadolinium - Gd is
having (Z) Atomic number
64 and rare earth
metal.

$$= n(n-1)$$

Except G.D these are other contrast agent which is used in MRI such as iron oxide (Fe_3O_4), DyHP-DOZA, manganese chloride, trisodium, manganese sulfate, and gadolinium chloride.

two types contrast occurs which are Positive and negative

Alam Khan
Swat
Swat DCIT (Dubar)
Physician
Swat Paramedical Institute Swat

Add: Dir Colony Allahho Akbar M

Positive contrast have
High atomic number
and appears white
and negative
contrast have low
atomic number and
appears black on
Radio graph.

Effect on T₁

According to Relaxivity
contrast media

$$= n(n+1)$$

of MR affects T_1 relaxation - contrast agent decrease the T_1 of organ or tissue where it accumulate. due to this - if increase signal intensity on T_1 - W images -

Effects on T_2

when signal intensity is decreases, the T_2 Now

shortening occur.

negative Relaxation

agent affects T_2 -re-

laxation. because due

to their accumulation

in tissue.

so signal inten-

sity will be decrease

on T_2 -W images.

Q38 Ans

slice thickness
depend on two ways
1st we will send
range of frequency
one frequency is
not enough. slice thick-
ness is depend on
range of frequencies.

the using of
frequency of RF pulse
with the range of

64 to 65 MHz. So
proton ~~to~~ show resonance
in smaller slice.

the second way
to produce thick slice
is due to the reson-
ance frequencies. Prod-
uce by the gradient
field.

slope select the
slice thickness.

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