Invention in science is germinated from doubts and questions.

Answers to the questions leads to new ways of looking at the old long standing un-resolved problems and thus Invention.
Invention in science

by

Rajul vasa
Mumbai India
Contemporary neuroscience considers lesion and loss of neurons as responsible factors for paralysis on one side of the body after stroke.

My curiosity remained unanswered for why small lesion gives huge paresis on one side of the body. Why paresis is not directly proportionate to loss of neurons in lesion area?

I read all my patients as new book still unread, I recognized that huge paresis is from tripping of current in opposite cerebellum when lesion strikes. It was not difficult to understand that cerebellum remained “Switched off” and it cannot get “Switched On” without the hand of therapists.
Contemporary treatment proposes **palliative** treatment approach to reduce magnitude of symptoms, mostly unsuccessfully.

I think though lesion and loss of neurons are irreversible, dead neurons are not active to give complex sensory-motor symptoms. One can **make lesion irrelevant and can put the patient on the road to true recovery** of lost control by “Switching On” the “Switched Off” cerebellum.
Neuroscience teaches that magnitude of paresis depends on loss of number of Cortico-spinal tract i.e. number of pyramidal tract damaged (john Krakauer)

I believe that loss of voluntary control is due to stopping of muscle motors from tripping in cerebellum when lesion strikes and not necessarily from loss of pyramidal tract or from number of Cortico-spinal tracts lost.
Neuroscience considers most complex sensory-motor symptoms as inevitable.

I believe that, major symptoms are born as a solution by self-organizing brain in self defense and self safety. Safety and secondary impairments are inter-linked, they can be avoided with therapeutics that promote safety from falling from Within from paretic body, not from outside.
Contemporary therapeutics fear falls and therefore fear gravity and support the patients with external supportive devices to prevent falls.

In my experience, the temporary effect of external supportive devices do not promote balance from within. Fear of falling makes patients defensive and protective. *(mind is at constant unrest)*

One can exploit gravity instead of fearing it. Gravity can be capitalized as a stimulus to generate GRFs to trigger reaction from paretic muscles to contract in a chain reaction to control COM safety for balance from within.
Contemporary therapeutics promotes use of conscious cortical sensations like vision and touch.

One must not advocate use of cortical sensations like vision and touch as they are compensatory making “Normally Abnormal, Normal” for stroke patients and compromising with proprioceptive subcortical sensations makes ‘stroke to remain stroke’ for rest of one’s life.
Contemporary neuroscience puts onus on dys-functioning descending motor tracts for motor problems.

Focusing on ascending conscious and unconscious proprioceptive tracts to cerebellum and connections from cerebellum to cortex to influence dys-functioning descending motor tracts in order to prevent and reverse complex motor symptoms is future of therapeutics.

Paretic muscle is a victim, treating paretic muscles is not treating the root cause, reestablishing connections between cerebellum to cortex, and cerebellum to spine, results in restoration of voluntary control as a byproduct.
Contemporary neuroscience proposes influencing Cortico-spinal tract to restore voluntary control with TMS. Studies do not show TMS to be functionally effective in restoring lost control.
Contemporary neuroscience explains spasticity as pathological uninhibited facilitation of subcortex from presence of lesion.

I have understood that safety and secondary impairment are interlinked. Resistance offered by muscle to movement is one of the solution to defend COM safety by brain in self safety.

Spasticity is in fact, Spin-spinal reorganization from spinal plasticity with inter limb knowledge and inter-limb sensation when anticipatory feed forwards from non-lesioned hemisphere is not capitalized due to cerebellar switch off and good body exclusively defends COM safety.
Resistance offered by paretic muscle with spasticity prevents segmental COM movement for global COM safety when anticipatory feed forward action is predominantly from good side and paretic body does not contribute towards COM safety with cerebellum switched off on non lesioned hemisphere.

Birth of spasticity can be prevented and also reversed by making paretic segments control safety of local and global COM.