Hypothesis

1. Introduction: “Setting the scene”

WHAT WERE THE INITIAL FACTS?
- Cerebellum’s development at the prenatal period is complex.
- Cerebellar disorders are involved in pathologic situations.
- Cerebral Ataxia is one of these disorders.
- There is a few information about prenatal events and atia.
- A deeper study is needed and required for this hypothesis formulation.

WHAT ARE WE TRYING TO ACCOMPLISH?
- Study how some proteins are related to cell proliferation.
- Establish how depletion of Purkinje cells (PC) or their neurotransmitters affects the proliferative behaviour of granule cells precursors (PGC).
- How alterations are involved in the patient’s phenotype observed in the cerebellar system.

WHAT CHANCE DO WE HAVE?
- Relationship among certain proteins and neurotransmitters of PC and granule cells (GC) proliferation might explain adult cerebellar ataxia.
- Set objectives and formulate the 3 main hypotheses.
- Principles, methodology, materials and the tutor are key facts to success.

2. What do we know about cerebellar ataxia?

Cerebellar ataxia is a group of neurological disorder showing complicated motor movements and a lack of coordination (Figure 1). Syndromes are related to costumetopedia, like kinstonic tremors, dystrophies and dysmetrias. Furthermore, there are learning deficiencies. In this disorder, it’s important to differentiate it from inherited ataxia. The project is based on the last ones, and it is supported by a mix’ rats that has a pleiotropic mutation. Specifically, we refer to a writer’s model.

Hypothesis 1
• Reduction of Purkinje cells
- High levels of 5’ phosphates are needed to direct the territory of CP formation at the cerebellum.

Hypothesis 2
• The SHH activity is necessary to strengthen the proliferative activity of SHH.

Hypothesis 3
• Purkinje cells and Deep Cerebellum (PC + DC) depletion.
- A correct identification of CP is required for a precise immunofluorescence transmission to the cerebellum.

3. An awesome architectural development

In the following steps, ataxia becomes narrower and cerebellar ataxia have reached (Figure 5). In this stage, CP-CP (CP1) appears between the middle back of cerebellum and cerebellum. CP-CP is modified in consequence of the change of SHH/1 (1) and 1 (2).

3.1. Cerebellar circuit, CP are involved in the cerebellum’s development of motor skills. SHH is involved in the cerebellar development of a motor coordination. SHH is involved in the cerebellum’s development of a motor coordination. SHH is involved in the cerebellum’s development of a motor coordination. SHH is involved in the cerebellum’s development of a motor coordination. SHH is involved in the cerebellum’s development of a motor coordination. SHH is involved in the cerebellum’s development of a motor coordination.

3.2. Ataxia is a consequence of NOT SHH expression.

4. Specific origin of different neuron types

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5. Homozisgous mice

Viable is a semidominant expression based on a single point mutation of a verte to a residue in the SHH gene. This alteration gives characteristics to a cerebelar neuron involved in mastering potassium channel (Figure 6). The importance of this event is the development of the pontine pathway. Consequently, there is an halo of CP at 1 and 2CP. Many neurons are affected, such as dopaminergic neurons related to Parkinson disease, and neurons of 5HT, which are widely distributed in the adult cerebellum. In the gestational period there are modifications in the cerebellar development (Figures 5, 6, 7, 8, 9, and 10). Viable’s death takes place in early stages, specially at the moment of weaning. Moreover, mice are small and fragile and have impairments.

6. Goals, objectives, measurements & how we know that we achieve it

REFERENCES

For all objectives: Understanding all knowledge, procedures, strategies related to cerebellar ataxia.

Analysis of risk to next steps

If the hypothesis is right, the challenge will be accomplished.

If they aren’t valid, we have to reformulate the hypothesis.

Methodology

5. Reference Materials

To verify all the hypothesis, immunohistochemistry will be used. This technique is based on the use of specific antigens in tissues (Figure 13).

- Paraffin-embedded or frozen tissue.
- Apply the primary antibody.
- Apply enzyme-conjugated secondary antibody.
- Fluorescence microscope visualization.
- Digitalization of image.

Principles of success

- Conform with the program.
- Choose when doing things to think and to approach.
- Research tools, materials or methods that help you achieve the success.

Bibliography