**Waking Up Anna**

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**Part 7: Beyond Waking Up**

Access to adequate quantities of the drug presents a practical problem for Flumazenil to be considered as a cure for hypersomnia. Anna is the only one person in the world who has taken the drug for an extended period of time. Ongoing research is focused on learning more about Anna’s condition and figuring out alternative ways to treat it.

Q1 (2 pts). How would you design the next experiment to figure out if the mechanism that you are proposing can explain Anna’s recovery from hypersomnia (with Flumazenil treatment)?

Ans: Future experiments could focus on

a. figuring out what the CSF factor is - the chemical, pharmacological and structural details of the unknown molecule can help figure out the full scope of Anna’s condition or

b. examine the structural changes and any differences between the binding of benzodiazepine, and Flumazenil to the GABA-A receptor.

Q2 (2 pts). Briefly describe in 3-4 sentences what experiments you would do and why?

The above goals can be accomplished by the following:

(1) collaborations with chemists will help to identify the structure of the molecule. Patient CSF samples could be separated into different fractions by separating out its components by size or properties (e.g. hydrophilic vs. hydrophobic)

(2) Resolve structure of the GABA-A receptor in complex with normal and patient CSF to see if the structure looks similar to the open conformation with a benzodiazepine or another positive allosteric modulator.