

# Idiopathic hypersomnia G47 after Pandemrix vaccine in Norway

Dr. Per E.Hesla

EEG-laboratoiet

Colosseum Medical Clinic

Oslo



# Claims reported to the Norwegian Health Insurance by 01.12.2016 after Pandemrix vaccine

- When there is a disease which may be caused by a vaccine, the Patient Injury Compensation Board must document that there is another more likely explanation for the disease in order for compensation to be given. It is not up to the patient to prove that the illness is directly caused by the vaccine

# Narcolepsy type 1 and Pandemrix

- A likely explanation was found, the vaccine somehow caused a reduction of hypocretin producing cells in the lateral anterior hypothalamus. The symptoms were documented before 24 months after vaccination, compensation was given to many patients

## Many patients were reported to The Patient Injury Compensation Board (NPE) post vaccination

- 692 patients claimed to be sick after Pandemrix vaccine, only 116 patients were given compensation caused by Pandemrix vaccine
- The following patients received compensation: 93 patients with narcolepsy type 1, 5 with polyneuropathia, 4 with myalgic encephalopathy, 3 with demyelinating disease, and 2 with Guillian Barres syndrome

# Cases rejected by The Health Insurance Board

- 33 cases with narcolepsy, 8 cases with Ideopathic hypersomnia, 2 cases with KLS. NPE claimed other cause for the disease, still not decided:
- 18 cases with narcolepsy
- 13 cases with IH one with KLS

# Could there be a link between Pandemrix vaccine and other Hypersomnias?

- The incidence and the prevalence of IH is unknown. It is unknown if there is an increase as seen with NC type 1. The pathophysiology of IH is also unknown, and to establish the diagnosis of IH other causes of hypersomnolence must be ruled out: parkinson disease, PTSD, genetic disorder, tumor, CNS lesions, endocrine disturbances, metabolic encephalopathy, hypersomnolence after OSAS treatment, medication, withdrawal of medication, as well as infection (no mention of vaccines)

This patient material in this presentation comes from EEGlab, Oslo and have been diagnosed by standard tests

- Sleep Questionnaire, one week actigraphy (Phillips actigraph), PSG with video surveillance, MSLT test the following day, a full clinical neurologic examination followed by haematological work up.
- When indicated, CT scans, MRI , Brainspect, Petscans, EEG and lumbar punctures has been performed

26 patients were diagnosed with IH symptoms occurring before 24 months post vaccination

- Patients with explained hypersomnolence were excluded from the material: 2 with history of illegal drug use, one with simultaneous EB virus, one with Asberger syndrome, one with Non 24 Sleep Wake Disorder, and one who had the swine flu influenza and was given Pandemrix after the influenza.

# The remaining IH patients

- 16 females aged 17 -34 (mean age 23 years) and
- 13 males aged 15- 36 ( mean age 20 years)
- All had PSG more than 6 hours sleep followed by MSLT tests
- For females varied from 6 minutes 19 seconds – 10 minutes 16 seconds (mean 7 minutes 30 seconds)
- For males 3 minutes 39 seconds- 7 minutes 17 seconds (mean 6 minutes 26 seconds)

## PSG stages in post vaccine IH patients

- No difference between the females and males:
- REM sleep 11.8- 28.1 ( mean 22.5 %)
- SWS /Non REM 3 and 4 : 16-42% (mean 24.6%)

# IH patients

- 2 patients in each group were HLADR2 DQb1 0602 positive , the rest
- HLADR2 DQb1 0602 negative.
- Onset of symptoms for females were 1 week- 20 months (mean 6 months)
- For males 2 months – 12 months ( mean 6 months)
- Final diagnosis was made after this period and records from primary physician had to document onset of symptoms. This was connected to some uncertainty because symptoms of hypersomnolense , loss of energy/fatigue, sometimes was not perceived as part of a serious disorder

To rule out possible misdiagnosis lumbar punctures were performed

- The hypocretin levels were compared with IH patients diagnosed before november 2009. (2004- 2009) and IH patients without Pandemix vaccine after 2009
- 12 males and 18 females
- Hypocretin varying from 290 -450 ( mean 390 pmol/ml) (same as the vaccinated patients, 285-380 pmol/ml)

# Problem for Patient Injury Compensation Board (NPE)

- NAV- Norwegian Health Insurance Institution has found some of the post vaccination IH patients more than 50% unable to work because of the reduced work ability. Rehabilitation and work training has been unsuccessful. NAV have stated that they are eligible for disability.
- Despite of that, NPE have been evaluating 21 of post vaccinated IH patients reported to NPE. NPE has not yet found that pandemic is the most likely cause for IH. Because this answer is not accepted by some patients it may be tried in court (They still see the vaccine as the trigger of their disease)

# IH and Pandemrix

- This observation will not dispute the findings of The Patient Injury Compensation Board.(NPE) The pathophysiology of IH is still unknown.

However, recent study from Emory University indicate that there may be a somnogen in the brain of IH patients which enhance the GABA<sub>A</sub> receptor and may become a marker for IH. IH is clinically different from NC type 1. For NC type 1 patients it is trying not to fall asleep when awake , in Somnogen related Hypersomnia patients, the problem is more to stay and remain awake. Their problem may be compared to the effect of a normal individual taking 5 mg of benzodiazepin, or having alcohol content of 1 pro mille, or being awake for 30 hours without sleep and still wanting to be awake.

# Is there a link between IH and NC type 1?

- In families with Narcolepsy type 1 there are sometimes close family members who have developed IH.
- Could this indicate that patients with IH and Narcolepsy type 1 may share some genetic material which could possibly affect individuals at risk to develop IH when exposed to vaccine or a virus infection ?

# Summary

- The question about Pandemrix vaccine and possible link to Somnogen related Hypersomnia is unknown.
- Judging from patients referred and diagnosed by one sleep lab (EEG lab) it may seem that there is a slight increase of IH patients after Pandemrix vaccine
- Before 2009, 5 IH patients per year, after 2009 to 2011, the lab observed a doubling of IH patients

# More Studies Needed

- It will be necessary to collect more data to confirm or not to confirm a medical link between Pandemrix and this particular disorder.
- It will particularly be difficult to establish if IH really does not exist. IH may only be the end result of a variety of pathophysiological processes, equal to obstructive sleep apnea syndrome. OSAS is simply the only end result of anatomical, neurophysiological, pharmacological, and behavioral factors. However with new understanding of IH it should be possible to treat and reverse Somnogen Related Hypersomnia in the same way.