

Report on Carp Edema Virus (CEV) Discussion at lunch 9th September 2015 during the 17th EAFP Conference in Las Palmas de Gran Canaria, Spain



Organized by European Reference Laboratory for Fish Diseases, National Veterinary Institute, Technical University of Denmark Copenhagen Denmark in collaboration with Dr. Olga Haenen Central Veterinary Institute (CVI) of Wageningen UR at Las Palmas, Gran Canaria, during the EAFP Conference

Small notes

The Carp Edema Virus- CEV discussion lunch was held in Las Palmas de Gran Canaria, Spain, the 9th September 2015, during the 17th EAAP Conference. Notes: Olga Haenen.

A total of about 40 participants from various countries attended the lunch time meeting.

Olga Haenen chaired the discussion, and asked for new developments since our previous CEV workshop of January 2015, in Copenhagen:

Central discussion points:

- Where are we now in our study of CEV?
- What needs to be done.... by whom?
- How to freely exchange information in the network without problems? Agreement?
- Should we extend the network to other novel cyprinid viral infections?

More in detail:

1. What is the impact of CEV?
2. Any susceptible cell lines found/available?
3. Diagnostic methods: qPCRs for carp and/or koi virus?
4. Pathogenesis, Koch's postulates, infection trials
5. Characterization of virus strains
6. Vaccination needed?
7. Funding opportunities: COST? H2020? EPIZONE? Koi branche? ANIHW-ERA
8. Publications
9. Central discussion points, see above

Point no. 1 What is the impact of CEV?

- **Bartolomeo Gorgoglione**, VetMedUni Vienna, Austria: we are working on retrieving sequences of CEV from clinical isolates; we tried to isolate the virus, not yet successful despite successfully transmitted from koi to carp; we included CEV in the differential diagnostics with KHV and SVC and are working with Standard Operating Procedures (SOPs).
- **Tom Waltzek**, Uni Florida, USA: We received CEV samples from all over the world, have sequenced the virus, 900 bp with one primer set, and are now to a first draft of a joint publication with CEFAS (D. Stone and K. Way). The conventional PCR works, the known gene is the right gene (?). Epidemiological usefulness of the PCR (?) is now being investigated.
- **Mikolaj Adamek**, Uni of Veterinary Medicine, Hannover, Germany: we would like to work on koi, on low viral loads in samples. Is this problematic?
- **Michal Reichert**, PIWET, Poland: CEV is since 2013 present in Poland. In 2015 there were new detections in carp, but no signals from farmers that they do have problems.
- **Eva Lewisch**, VetMedUni Vienna, Austria: We cannot yet say, if we have positive carp farms, first we need to test. Specific clinical signs are seen, we do E.M. for pox virus.
- **Keith Way**, CEFAS, Weymouth, UK: Most E.M. works so far has been done on koi isolate of CEV.

- **Dick Kleingeld**, LAVES, Veterinary Task Force, Hannover, Germany: We should assume, CEV was introduced many years ago into Europe. Koi importers could have seen clinical signs already for a few years, but only last 2-3 years we have detected CEV in outbreaks.
- **Sven Bergmann**, FLI, Greifswald, Germany: Since 2004 we see real disease with CEV, with carp mortalities.
- **Mansour El-Matbouli**, VetMedUni Vienna, Austria: In spring in Austria we see high mortalities with CEV, we wonder if this would be SCMS (Spring Carp Mortality Syndrome)?
- **Keith Way**: Yes, we have proven, that SCMS and CEV are connected.

Point no. 2: Any susceptible cell lines found/available?

- There are no susceptible fish cells yet for CEV. Various laboratories try at various cells and at various temperatures. This needs to be solved to perform infection challenges and thus allow further research.
- Get diagnostic tests in place and screen also archive samples (including frozen samples and paraffin blocks) for CEV, so, get an overview of where CEV is in Europe.

Point no. 3: Diagnostic methods: qPCRs for carp and/or koi virus?

- **Olga Haenen**: The one qPCR is better for the koi CEV strains (Hannover) and the other qPCR for the carp CEV strains? We would need a qPCR which would detect all CEV strains. Any ideas?
- **Tom Waltzek**: We are now mapping the sequences, will be designing a primer set with colleagues from CEFAS, and will be happy to share them in the CEV network.

Point no. 4: Pathogenesis, Koch's postulates, infection trials

- **Sven Bergmann, Tom Waltzek, Michal Reichert, Bartolomeo Gorgoglione, Eva Lewisch and Mansour El-Matbouli** are looking into transmission, susceptibility and pathogenesis, by cohabitation trials with clinical animals.

Point no. 5: Characterization of virus strains?

- **Laurent Bigarré**, ANSES, Ploufagan, France, and **Tom Waltzek** are working on this, and would be happy to receive CEV isolates from other laboratories.

Point no. 6: Vaccination needed?

- Since the virus cannot be replicated yet in vitro, it is too early to think about vaccines.

Point no. 7: Funding opportunities:

- **Mansour El-Matbouli**: H2020 has a pre-call on diagnostics.
- **Olga Haenen**: EPIZONE has money for network meetings. Further we keep an eye on ANIHWA, and CoVetLab European funding of projects.

Point no. 8: Publications

Several papers are due:

- It was decided to publish a summary of the Novel cyprinid viral infection workshop, including updates about CEV, in a joint paper for the Bulletin of the EAFP, Dec 2015 submitted.
- An CEV alert paper lead by Keith Way with the CEV network of January 2015
- National reports on CEV detections

Point no. 9: Central discussion points:

How to freely exchange information in the network without problems?

- **Bartolomeo Gorgoglione:** to promote collaboration between groups we should work with a **signed agreement**, to exchange useful protocols, and arrange also agreements related to already provided and shared materials and SOPs.
- This is particularly relevant due to the need of sharing positive samples to use for reference.

Should we extend the network to other novel cyprinid viral infections?

- The lunch discussion group decides, we keep the network small, like the group of January 2015 and of today, and extend it with the newcomers: **Agnes Baumer** (LHL, Hessen, Germany), **Dick Kleingeld, Thomas Wahli** (NRL Fish Diseases, Bern, Switzerland) and **colleague, Motohiko Sano** (Laboratory of Fish Pathology, Tokyo, Japan), **Takafumi Ito** (Tamaki Laboratory, NRIA, FRA, Mie, Japan), **Vlasta Jencic** (Vet Faculty, Uni Ljubljana, Slovenia).

CEV disease, CEVD, is it emerging? Should it become listed?

- **Vlasta Jencic**, Vet Faculty, Uni Ljubljana, Slovenia: Would notification be necessary?
- **Dick Kleingeld:** This depends on the local policy. They deal with abnormal mortalities of fish, so they are notifiable in that sense. However more epidemiological information is necessary in order to decide whether action has to be taken acc. European Directive 2006/88/EC concerning emerging diseases.
- **Niels Jørgen Olesen**, EURL for Fish Diseases, Copenhagen, Denmark: we should all first detect and monitor more before we really can state that CEV is “emerging”.
- **Sven Bergmann:** for Germany, CEVD is proven as “emerging”. Will contact the Veterinary Authority.
- **Olga Haenen:** This is not yet proven for our CEV detections in the Netherlands.

Olga Haenen thanked all participants, and closed the lunch meeting, after which we had a joint lunch.

