

**PREVENTION OF CLASSICAL SWINE FEVER
IN THE BORDER REGION CROATIA – SERBIA
(STOP – CSF)**

International Conference

PROCEEDINGS

June 7 – 8, 2012, Hotel Park, Novi Sad

Publisher / Izdavač

Scientific Veterinary Institute „Novi Sad“, Novi Sad
Naučni institut za veterinarstvo „Novi Sad“, Novi Sad

For the Publisher / Za izdavača

dr Dragica Stojanović, Senior Research Associate, Director of the Institute

Reviewers / Receptenti

Dr Ivan Toplak

Faculty of Veterinary Medicine, Ljubljana, Slovenija

Dr Emiliya Ivanova

National Diagnostic and Research Veterinary Medical Institute Sofia, Bulgaria

Dr Tamaš Petrović

Scientific Veterinary Institute „Novi Sad“, Novi Sad, Serbia

Editor in Chief / Glavni i odgovorni urednik

Dr Tamaš Petrović, Senior Research Associate

Printed by / Štampa

SAGITTARIUS DOO, Subotica

Copies / Tiraž

300 primeraka

IPA Cross-Border Program Croatia-Serbia 2007-2013

The project:

PREVENTION OF CSF SPREADING IN CROSS-BORDER REGION THROUGH IMPROVEMENTS OF SANITARY STANDARDS AND EDUCATION OF FARMERS (STOP -CSF)

SPREČAVANJE ŠIRENJA KLASIČNE KUGE SVINJA U POGRANIČNOM REGIONU KROZ POBOLJŠANJE SANITARNIH STANDARDA I EDUKACIJU FARMERA (STOP – KKS)

This document has been produced with the financial assistance of the European Union. The contents of this document are the sole responsibility of the Scientific Veterinary Institute "Novi Sad" and can under no circumstances be regarded as reflecting the position of the European Union.

International Scientific Conference / Međunarodna naučna konferencija

“PREVENTION OF CLASSICAL SWINE FEVER IN THE BORDER REGION CROATIA – SERBIA (STOP – CSF)” „SPREČAVANJE ŠIRENJA KLASIČNE KUGE SVINJA U POGRANIČNOM REGIONU HRVATSKA – SRBIJA (STOP – KKS)“

The Scientific Committee:

Dr Tamaš Petrović (Chairman), Scientific Veterinary Institute Novi Sad, Serbia,
Dr. Stefanie Schmeiser, Community Reference Laboratory for CSF, Institute for Virology, University of Veterinary medicine, Hannover, Germany,
Dr. Lorena Jemeršić, Croatian Veterinary Institute, Zagreb, Croatia,
M.Sc. Vesna Miličević, Scientific Veterinary Institute Serbia, Belgrade, Serbia,
Dr Ivan Toplak, Veterinary faculty, National Veterinary Institute, Slovenia,
Dr Eveline Wodak, Institute for Veterinary Disease Control, Mödling, Austria,
Dr Vilmos Palfi, Central Veterinary Institute, Head of Virological Department, Budapest, Hungary,
Dr Emiliya Ivanova, National Diagnostic and Research Veterinary Medical Institute, Sofia, Bulgaria
Dr Daniel Donescu, Institute for Diagnosis and Animal Health, Bucharest, Romania
Dr Igor Džadžovski, Faculty for Veterinary Medicine – Skopje, FYR Macedonia
Dr Dragan Kasagić, Veterinary Institute "Dr Vaso Butozan" Banja Luka, Republic of Srpska, Bosnia and Herzegovina
Prof. Dr. Bosiljka Đuričić, Faculty of Veterinary Medicine, University of Belgrade, Serbia
Prof. Dr. Mladen Gagrčin, Department for Veterinary Medicine, Faculty of Agriculture, University of Novi Sad, Serbia
Dr Sava Lazić, Scientific Veterinary Institute Novi Sad, Serbia

The Organizing Committee:

Dr Sava Lazić (Chairman), Scientific Veterinary Institute Novi Sad, Serbia;
Silva Wendling, Osijek-Baranja County, Croatia;
Dr Dragica Stojanović, Scientific Veterinary Institute Novi Sad, Serbia;
M.Sc. Budimir Plavšić, Veterinary Directorate, Ministry of Agriculture, Trade, Forestry and Water Management, Republic of Serbia;
Dr Tamaš Petrović, Scientific Veterinary Institute Novi Sad, Serbia;
Dr Branka Vidić, Scientific Veterinary Institute Novi Sad, Serbia;
Dr Dušan Orlić, Scientific Veterinary Institute Novi Sad, Serbia;
M.Sc. Radoslav Došen, Scientific Veterinary Institute Novi Sad, Serbia;
M.Sc. Ivan Pušić, Scientific Veterinary Institute Novi Sad, Serbia;
Jovan Kvašček, Scientific Veterinary Institute Novi Sad, Serbia;
Josip Lovković, Osijek-Baranja County, Croatia;
Tomislav Petric, Osijek-Baranja County, Croatia;
Gordana Stojanović, Regional Development Agency of Slavonia & Baranja, Croatia
Arleta Kovač, Regional Development Agency of Slavonia & Baranja, Croatia

***Održavanje Konferencije i štampanje Proceedingsa je podržalo
Ministarstvo prosvete i nauke Republike Srbije***

INFLUENCE OF IMMUNE STATUS OF THE POPULATION ON DIAGNOSTICS OF CLASSICAL SWINE FEVER

Radoslav Došen¹, Ivan Pušić¹, Mladen Gagrčin², Ratajac Radomir¹, Doroteja Marčić¹, Igor Stojanov¹, Živoslav Grgić¹

1. Scientific Veterinary Institute "Novi Sad", Novi Sad, Serbia

2. Department for Veterinary Medicine, Faculty of Agriculture, University Novi Sad, Serbia

Abstract

Classical swine fever (CSF) is a serious, economically significant disease of pigs that can spread in the form of epidemics, and causes enzootic infections in domestic and wild pigs. CSF is on the List A of the Office International des Epizootics (OIE). Most countries with big pig production have developed control measures regulated by law. The effectiveness of these measures varies depending on the national economy and the development of veterinary service and laboratory system in a country. An important measure is the timely detection of suspicious CSF cases, based on epizootiological investigation, clinical and histological picture, and laboratory confirmation of diagnosis. In our country piglets, originating from sows vaccinated with the C-strain, are required to be vaccinated at the age of 45 to 60 days. Breeding sows and gilts should be vaccinated at least 15 days before every mating. Although the time of the first vaccination of piglets is clearly defined, in the field this is postponed until the age of 90 days, regardless of the immune status of the sows.

Several placental layers (placenta epitheliochorialis) are responsible that maternal antibodies are not transferred to the fetus, however, the passive immunity is acquired by colostrums intake after farrowing. It is believed that colostrum protection of piglets primarily depends on the antibody titer value in the body of the sows and quantity of colostrums intake by the newborn piglets. The problem of passive immunity is particularly important in terms of quality and length of colostrum intake as it protects young piglets against CSF infection. The results of experimental investigations point on individual differences in the titer of specific antibodies between the litters and sows. The field study results indicate that the level of specific maternal antibodies against CSFV in pigs vary from farm to farm, due to different immune status of sows. This causes difficulties in designing a vaccination program of piglets. A special problem is the length of colostrum protection against CSF infection in piglets originating from sows repeatedly vaccinated with a modified (attenuated) live vaccine.

The immune status in pig populations where vaccination program has been implemented is very variable. Some pigs are vaccinated several times a year, some several times in life, and some have never been vaccinated. Some pigs, both vaccinated and unvaccinated, originate from vaccinated and unvaccinated sows. Some breeding animals have not been vaccinated for several years. Clinical and histological diagnosis becomes even more complicated with the possibility of infection with the CSFV of different virulence.

In addition, many bacterial infections and intoxications are of septicemic form, with similar clinical and histological signs, what significantly prolongs time to

confirm CSF disease. Time is lost in waiting can cause a large-scale outbreak (correlation between the number of infected pigs and on a specific area). The situation becomes even more complicated by the cases of 'new' viral swine diseases that, from clinical and pathomorphological point of view, are of similar symptoms and can be mistaken for CSF. The may result is a false diagnosis of CSF on an area that is blocked, with a large number of pigs disposed, what may cause great economic losses to farmers and the country as a whole.

The clinical signs and pathomorphological changes of naïve animals infected with CSF are well described in the literature, however, in the CSF field cases variability of clinical manifestations and organ changes were noted. This can make difficult to diagnose at an early stage what can cause the spread of infection over a wider region. Special problems are the animals in which, despite colostral antibodies originating from vaccination, CSF virus is reproduced, but without clinical symptoms typical for CSF. The aim of this paper was to point on the problems of clinical and laboratory diagnostics in swine populations of different immune status.

Key words: classical swine fever, immunity diagnostics

Acknowledgements: This work is part of the research done in the project TR31084 funded by the Ministry of education and science of Republic of Serbia.

UTICAJ IMUNSKOG STATUSA POPULACIJE NA DIJAGNOSTIKU KLASIČNE KUGE SVINJA

Radoslav Došen¹, Ivan Pušić¹, Mladen Gagrčin², Ratajac Radomir¹, Doroteja Marčić¹, Igor Stojanov¹, Živoslav Grgić¹

1. Naučni institut za veterinarstvo "Novi Sad", Novi Sad, Srbija

2. Departman za veterinarsku medicinu, Poljoprivredni fakultet, Univerzitet Novi Sad, Srbija

Kratak sadržaj

Klasična kuga svinja (KKS) je ozbiljno, ekonomski značajno oboljenje svinja koje se može širiti u formi epizootije, kao i razvojem enzootskih infekcija kod domaćih i divljih svinja. KKS se nalazi na listi A u okviru Office International des Epizootics (OIE). Većina zemalja sa značajnom proizvodnjom svinja je razvila mere kontrole koje su određene zakonom. Efikasnost ovih mera varira u skladu sa nacionalnom ekonomijom i nivoom razvijenosti veterinarske i laboratoriske infrastrukture jedne države. Jedna od važnih mera je, pravovremeno postavljanje sumnje na KKS, na osnovu epizootiološke inspekcije, kliničke i patomorfološke slike, kao i brza, tačna laboratorijska potvrda dijagnoze. U našoj državi propisano je da se prva vakcinacija prasadi koja potiču od krmača vakcinisanih K-sojem obavlja u uzrastu od 45 do 60 dana. U slučaju da se jedinka ostavlja za priplod, program imunoprofilakse dalje podrazumeva vakcinaciju nazimica i krmača najkasnije 15 dana pre svakog pripusta. Iako je vreme prve vakcinacije prasadi sasvim jasno definisano, na terenu se najčešće prva vakcinacija odlaže do uzrasta od 90 dana, bez obzira na imunološki status krmače majke.

Zbog postojanja višeslojne placente (*placenta epitheliochorialis*), kod svinja ne postoji transfer maternalnih antitela u cirkulaciju fetusa, tako da se pasivni imunitet stiže u potpunosti unošenjem kolostruma posle prašenja. Smatra se da kolostralna zaštita prasadi primarno zavisi od vrednosti titra antitela u organizmu krmače-majke i količine kolostruma koje posisa novorođeno prase. U svinjarskoj proizvodnji, problem pasivnog imuniteta je posebno značajan sa aspekta kvaliteta i dužine kolostralne zaštite od infekcije prasadi virusom KKS. Rezultati eksperimentalnih istraživanja ukazuju na postojanje velikih individualnih razlika u vrednosti titra specifičnih antitela u leglima prasadi i među krmačama. Isto tako, i rezultati terenskih istraživanja ukazuju da nivo specifičnih maternalnih antitela protiv virusa KKS kod prasadi značajno varira od farme do farme, zbog različitog imunološkog statusa krmača, što stvara poteškoće u formulisanju određenog programa vakcinacije prasadi. Kao poseban problem ističe se i pitanje dužine trajanja kolostralne zaštite od infekcije virusom KKS kod prasadi koja potiču od krmača višekratno vakcinisanih modifikovanim (atenuisanim) živim vakcinama.

Imunološki status populacija svinja u regionima gde se sprovodi vakcinacija svinja je veoma varijabilan. Pojedine jedinke u populaciji su više puta vakcinisane u toku godine, deo populacije više puta u životu, neke jedinke nisu vakcinisane. Neka prasad su vakcinisana ili nisu vakcinisana, a potiču od vakcinisanih ili nekad vakcinisanih ili nevakcinisanih majki. Kod priplodnih grla često prodje više godina od zadnje vakcinacije. Kliničku i patomorfološku dijagnozu još više komplikuje mogućnost infekcije virusom KKS različite virulencije.

Pored toga, mnoge bakterijske infekcije u septikemičnoj formi, kao i intoksikacije, mogu dati sličnu kliničku i patomorfološku sliku, te značajno produžiti vreme od pojave do potvrde bolesti. Izgubljeno vreme može da dovede do razvoja epizootije širih razmera (u odnosu na broj obolelih svinja i širinu zahvaćene regije). Epizootiološku situaciju još više komplikuje pojava 'novih' virusnih bolesti svinja, koje sa kliničkog i patomorfološkog aspekta daju veoma sličnu sliku, te se mogu zameniti sa KKS. Posledica toga bi mogla biti da se neopravdano proglasi na odedenom području prisustvo KKS, blokira područje i neškodljivo ukloni velik broj svinja, te nanese visoka ekonomska šteta, kako farmeru tako i području u celini.

Kod neimunih jedinki inficiranih virusom KKS klinička slika i patomorfološke promene su u literaturi dobro opisane, međutim kod pojave KKS u terenskim uslovima ustanovili smo varijabilnost kliničkih simptoma i promena na organima. To može da oteža brzo postavljanje dijagnoze u ranoj fazi infekcije i može dovesti do širenja zarazne bolesti na širi region. Sa infektivnog aspekta poseban problem predstavljaju jedinke, kod kojih se i pored ustanovljenih kolostralnih ili antitela porekolom od vakcinacije, virus KKS može da umnožava, ali bez ispoljavanja kliničkih simptoma karakterističnih za KKS. Cilj rada je da ukaže na probleme kliničke i laboratorijske dijagnostike u populaciji svinja različitog imunološkog statusa.

Ključene reči: klasična kuga svinja, imunitet, dijagnoza

Zahvalnica: U radu je predstavljen deo istraživanja po projektu TR31084 koji finansira Ministarstvo prosvete i nauke Republike Srbije.