Poster Presentation (PF-3)

Prevalence and Risk Factors of Jembrana Disease, Bengkalis District Riau Province

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INTRODUCTION

Jembrana disease (JD) is contagious viral disesase in Bali cattle, caused by Retrovirus from member of Lentivirus group called by Jembrana disease virus (JDV). Jembrana disease outbreak in Bengkalis district first occured 2013 and until now is endemic. This purpose of study is to determine the prevalence of JD and to identify a risk factor associated with JD in Bengkalis district.

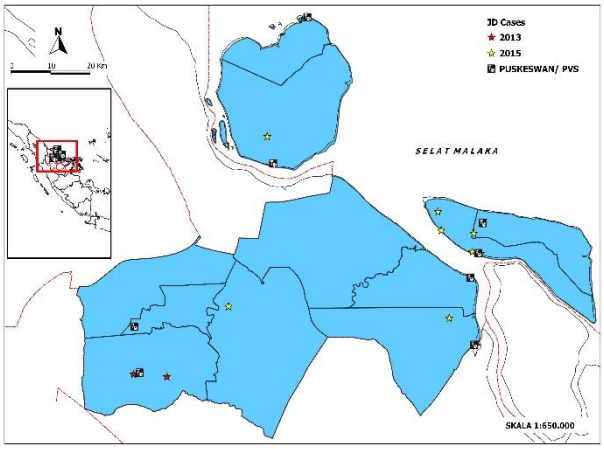

Figure 1. Map of Jembrana disease (JD) cases in Bengkalis district during 2013 - 2015 (©QGIS 2010)

MATERIALS AND METHODS

A cross-sectional study was conducted in November until December 2016. The multistage sampling method was used to determine the number of samples based on sample size formula for the level of disease. The blood samples with EDTA anticoagulant were collected from 158 head of the Bali cattles and tested by the real-time PCR methods in Biotechnology Laboratories, Disease of Investigation Centre (DIC/ BVET) Bukittinggi. The samples were collected from selected method above with and without vaccination. The results of questionnaires and laboratory test were tabulated, and analyzed with different statistical approaches such as univariable, bivariable, and multivariable logistic regression analyses within statistics for the windows version 7 software. The association between JD and independent variables revealed significance ($p<0.05$). The multivariate analyses which logistic regression technique for modeling the potential risk factors related JD. The independent variables which consider as risk factors had $p<0.05$ suggest that given model. The Hosmer-Lemeshow test was applied for assesment the goodness of fit of logistic regression model. The contribution of each independent variables considered for explaining probability the outcome was measured by coeficient variables and odds ratio (OR).

RESULT AND DISCUSSION

The result showed that JD was found in the Bali cattle in the Bengkalis district. The table 1 showed the prevalence of JD in Bengkalis district. The prevalence of JD in Bengkalis district was 41.1%.

Table 1. Prevalence of JD in the Bali cattle, Bengkalis district Riau province, 2016

Samples	JD		Prevalence (%)
Blood EDTA	(+)	65	41,1
	(-)	93	
Sum		158	

The univariate analyses were explained of each variables along with examining its relationship with the outcome of JD (data unpublished). The table 2 showed the risk factor of JD based on bivariate analyses in the Bengkalis district.

Table 2. Bivariate analyses on risk factors that associated with JD, Bengkalis district Riau province, 2016

Variable	OR[a]	95% CI[b]	p value
Rupat sub-district	9.45	0,003 – 0,009	0.0105

Flood	5.29	0,026 – 0,007	0.0214
A field graze	6.88	0,011 – 0,012	0.0087*
The cattle came from outside the district or the island	3.96	0,034 – 0,019	0.0466
Water source	5,87	0,027 – 0,00	0,0154
The livestock's manure without processed	6.54	0,003 – 0,001	0,0003*
The livestock 's manure dumped	6.19	0,018 – 0,008	0.0128
The sick cattle sold were treated or untretaed	4.59	0,043 – 0,000	0.0322

[a] OR, odds ratio
[b] CI, confidence interval
* Statisticaly very significant difference (p<0.01)

Although there was no statiscaly significant difference (P>0.05) there was a tendency that when without vaccination, the prevalence of JD in Bengkalis district increased.

Tabel 3. Multivariate analyses on risk factors that associated with JD, Bengkalis district Riau province, 2016

Variables	β	OR[a]	SE	p value
Rupat sub-district	1.84	6.31	0.66496	0,0056*
Flood	-3.09	0.05	0.97287	0.0015*
Insect	0.99	2.69	0.43482	0.0228
A field graze	1.12	3.08	0.53216	0.0347
The sick cattle sold were treated or untreated	2.79	16.41	1.48908	0.0283
Saving	0.90	2.47	0.43557	0.0380
Herd size	1.30	3.68	0.51750	0,0119

[a] OR, odds ratio
* Statisticaly very significant difference (p<0.01)

The table 3 showed the risk factor of JD based on multivariate analyses in Bengkalis district. The negative value of regression coefficient indicate the odd and the probability of JD may decrease. According the estimate of the model, it was observed that multivariables resulted very little effect and their interpretations. Furthemore, the direction of realtionship between JD and predictor was the same. Based on the table 3 confirm that would be model and suitable for predicting the JD in Bengkalis district. The Hosmer Lemeshow statitistic for goodnes and fit test for this model given the sensitivity %, spesificity % were 67.21%, and 75.25% which at cutoff point 0.5, and the overall percentage of the JD probability was 99.6%.

CONCLUSION

The Bali cattle infected JDV n Bengkalis district. The prevalence of JD in Bengkalis district was 41.1%. Both different analyses methods present, the cattle came from outside the district or the island, the sick cattle sold were treated or untretaed, the livestock's manure dumped, water source, insect, saving, and herd size appears to be significant risk factors for JD, while the others risk factor a field graze, the livestock's manure without processed, flood, and Rupat sub-district to be very significant risk factors of JD. It is mean to reduce the prevalence of JD, risk factors, both very significant and significant, should be controlled immedietly. Although statistically not significant, but vaccination is very important control of JD in Bengkalis district.

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