he Development of REGITA Model

by C.1.c.3.2 Wayan

The Development of REGITA Model for Prevention of Delivery Complication

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ABSTRACT

Introduction : Maternal Mortality Rate (MMR) in Indonesia increased significantly. Factors that contribute to maternal mortality can be divided into direct and indirect causes. The direct causes of maternal death are factors associated with complications during pregnancy, childbirth and post-partum such as bleeding, pre-eclampsia / eclampsia, infection, obstructed labour and abortion. The Ministry of Health has done many interventions to reduce MMR but the result didn't show a good progress. By developing REGITA model for prevention of delivery complications it's expected to provide a solution or a way out for acceleration reduce MMR in Indonesia. Research Methodology : This is a quantitative research by nested case control research design. This research be will divided into three stages. The first stage is data analysis, second stage is development of REGITA and the third stage is trial of model worthiness. Data were obtained retrospectively based on the medical records in Maternal and Child Handbook and maternal cohort. The population in this research are all delivered mothers in Bandar Lampung and the total number of samples were 820 mother by ratio of 1: 1 sample where the control sample is 410 and the case sample is 410. Result : The result of research show that variables that jointly influence the incidence of delivery complication where based on the statistic analysis,the most dominant variable is the history of chronic disease. REGITA Model can be used to predict the risk of delivery complication faced by a pregnant mother. It's available in the following address : modelRegita.com.
Key word : Delivery complication, Regita Model for prevention of high risk of delivery complication.

1.INTRODUCTION

Complications during pregnancy and childbirth is a complex issue, due to complications of pregnancy can cause maternal death directly during pregnancy or delivery. In Negeria 50,000 women die each year due to complications during pregnancy and childbirth [1] and in Nepal 4500 women die every year with the same cause [2]. 25% of maternal deaths occur during the first 24 hours after delivery and 50% of deaths occurred in one week after delivery, both because of pregnancy complications [3].

According to Demographic Health Survey 2012, MMR in Indonesia increased from 228/100.000 live birth to 359/100.000 live birth. Lampung province is one of the highest contributor of maternal death in Indonesia. Lampung province is one of the highest contributor of maternal death in Indonesia where the highest case of maternal death in seven district (South Lampung, North Lampung, Tulang Bawang, Central Lampung, Lampung West, East Lampung an Bandar Lampung) [4].

Factors that contribute to maternal mortality can be grouped into direct and indirect causes. The direct causes of maternal death are factors associated with complications of pregnancy, childbirth and post-partum such as bleeding, pre-eclampsia / eclampsia, infection, obstructed labour and abortion. [5]. Indirect causes of maternal death are factors that aggravate the situation of pregnant women. In addition to the above-mentioned causes "Three Delays" (late recognize danger signs and make decisions, too late to reach health facilities, and late in the handling of emergencies), can also worsen the health status of mothers and complicate the process of handling emergency pregnancy, childbirth and puerperal ([6], [7])

Some methods and program have been developed by the Indonesia government to detect early delivery complication but the result didn't show agood progress. Until now there is no model to detect delivery complication so it can be prevented and managed as early as possible. REGITA model of early detection of delivery complication is developed based on the incidence of risk factors between distant variable and intermediate variable and it will provide appropiate recomendation for the pregnant women to prevent delivery complication.

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2. RESEARCH METHODOLOGY

This research is nested case control. This reasearch will be divided into three stages. The first stage is data analysis, second stage is development of REGITA and the third stage is trial of model worthiness. Data were obtained retrospectively based on the medical records in Maternal and Child Handbook and maternal cohort. If the data is not available, interview will be done durirng research. The population in this research were all delivered mothers in Bandar Lampung and the total number of samples were 820 mother by ratio of 1: 1 sample where the control sample is 410 and the case sample is 410. Data collection is collected for six months by selecting sample according to inclusion and exclusion criteriaInstruments used in this reasearch are questionnaires to collect primary data and for secondary data collected from the patient's medical record, maternal and child health (MCH) hand book and maternal cohort. Data were analyzed by univariate analysis method was conducted descriptively and for bivariate analysis using statistical test Chi Square with a 95% degree of confidence. For multivariate analysis, the logistic regression will be used. In the first stage namely collection and data processing, data were analyzed as calculation to develop REGITA model for prevention of delivery complication. The result of research show that variables that jointly influence the incidence of delivery complication are anemia, mother's weight, history of infectious and parasitic diseases, history of chronic disease, parity, birth spacing, Quality of ANC, history of previous labor, delivery attendent, mother's knowledge, family income, the decision to refer, referral facility. Based on the statistic analysis,the most dominant variable is the history of chronic disease. REGITA Model for prevention the risk of delivery complications can be used to predict the risk of delivery complication faced by a pregnant mother. This model can be opened online in the following address : **modelRegita.com**

3. RESULT

The result of research show that variables that jointly influence the incidence of delivery complication are anemia, mother's weight, history of infectious and parasitic diseases, history of chronic disease, parity, birth spacing, Quality of ANC, history of previous labor, delivery attendent, mother's knowledge, family income, the decision to refer, referral facility. The statistic analysis also show that the most dominant variable is the history of chronic disease with p value 0,000 and prevalence Odd Ratio 4,833; CI 95 % (2.557- 9,136).

Tabel 1 Final model to predict factors influencing the incidence of delivery complications

Variable in model	B	SE	Wald	Df	Sig.	Exp (B)	95 % for Exp(B)	
							Lower	Upper
Anemia	.378	.165	5.231	1	.022	1.460	1.056	2.019
Mother's weight	.958	.470	4.147	1	.042	2.605	1.037	6.548
The history of infection and parasite disease	.833	.398	4.369	1	.037	2.299	1.053	5.019
The history of chronic disease	1.575	.325	23.515	1	.000	4.833	2.557	9.136
Birth Spacing	-.635	.253	6.287	1	.012	.530	.323	.871
Parity	.544	.260	4.355	1	.037	1.722	1.034	2.870
The history of previous delivery	.591	.236	6.272	1	.012	1.805	1.137	2.866
The quality of ANC	.378	.170	4.961	1	.026	1.460	1.046	2.036
Birth attendent choosen	1.401	.684	4.191	1	.041	4.059	1.062	15.520
Mother's education	.538	.199	7.314	1	.007	1.713	1.160	2.529
Family Income	.807	.162	24.774	1	.000	2.242	1.631	3.081
Decision maker to refer	.758	.278	7.425	1	.006	2.135	1.237	3.684
Referral facility	.788	.179	19.270	1	.000	2.199	1.547	3.126
Constant	-2.757	.322	73.275	1	.000	.063		

Table 1 show that the chance of complications of labor in women: history of chronic disease, unqualified birth attendants, risk gain weight, history of infectious diseases, low family income, unavailable referral facility, decision to

refer determined by others, a history of abnormal labor, risk parity, less maternal knowledge, anemia, unqualified ANC, and risk birth spacing, are (94%). Or if the risk factors can be avoided then the probability of healthy mothers will be 94% and 5.97% will be sick.

Based on the REGITA model trial worthiness for delivery complication, it show that the sensitivity of the REGITA models to incidence of delivery complications is 81,9 %, the specificity is 90,91, Positive Predictive Value (NPP) is 91,00%, Negative Predictive Value (NPN) is 81,82%. The result of this statistic will be used to develop simulator program to generate REGITA model for prevention of delivery complication that can be used to predict risk of delivery complication facing by a pregnant women. This program can be opened online in the following address : **modelRegita.com** By using this model the mother will be able to see risk of delivery complication that may happen to her and she will get recommendation where she should deliver based on her risk in order to deliver safely.

4.DISCUSSION

Many researcher support the result of this research that show that Anemia ([8],[9]), mother's weight ([10],[11]), history of infectious and parasitic diseases [12], history of chronic disease ([13],[14],[15],[16]), parity [17], history of previous labor ([18] [19]), Quality of ANC [20], delivery attendent ([21],[19],[22]), mother's knowledge [23], family income [24], the decision to refer [25] and referral facility ([26],[22]) influence the incidence risk of delivery complication. Prevention and management as early as possible can prevent the incidence of delivery complication. By following the recommendation generated by software, the problem can be minimized or removed before the delivery day.

Based on the the result of NPP or accuracy of REGITA Model in predicting the delivery women to get complication as much as 91,00%, while NPN or accuracy of REGITA model in predicting the delivery women not to get complication as much as 81,82%. This show that REGITA model has high predictive validity so if this model is used by pregnant mother and health provider at least many mother who has risk for maternal complication can be found and managed properly.

Early detection of delivery complication risk by using REGITA model, improving the quality of ANC, referral management of chronic disease in pregnant women, should be done as early as possible by mothers and health workers to minimize or eliminate the risk factor for delivery complications. Improvement of regulation supporting maternal and child health and providing good referral facility to increase the quality of health service must also be done

5.CONCLUSION

This research generate REGITA model that can be used to decide the risk facing by mother to get delivery complication. This model also give recommendation to the mother about what the mother should do to reduce or remove this risk factor.

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