IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 23, Issue 4 Ser. 1 (April. 2024), PP 25-27
www.iosrjournals.org

Forecasting Ovarian Cancer With Lactate Dehydrogenase Using Logistic Regression Models

Sardjana Atmadja
Department Of Obstetrics And Gynecology Faculty Of Medicine And Health Sciences Islamic University Syarif Hidayatullah Jakarta

Abstract
Objective*: This research is to prove that there is a significant relationship between the patient's absence from participating in activities at school/campus and the symptoms of primary dysmenorrhoea experienced during menstruation. Endometriosis is characterized by pain in the lower abdomen during menstruation. Apart from that, this research is also to obtain patient profiles and factors that influence primary dysmenorrhea.*
Logistic regression models were used to assess the main factors of dysmenorrhoea in these patients.
Method*: Research was conducted at RSU Pindad Turen. A total of 125 patients were randomly selected in this study. The factors observed were menarche, menstruation, length of menstruation and volume of blood lost as well as lactate dehydrogenase levels. From the logistic regression model, it is known that there are three factors that influence the occurrence of dysmenorrhoea in patients, namely menarche, length of menstruation and menstrual blood volume.*
Results*: The Hosmer and Lemeshow test shows that the model for measuring lactate dehydrogenase levels in endometriosis is correct (Chi squar test value is 2.847 with p-value = 0.416). Instead of Press. (3) and Eq. (4) It is known that the contributors to dysmenorthea are the length of menstruation, menstrual discharge and the beginning of menarche. By looking at the odds ratio, it is known that the risk of patients experiencing dysmenorrhoea is (i) 2.5 times higher in those who have longer menstrual periods (ii) 3.7 times higher in those who have less menstrual discharge and (iii) three times higher for those who have been mining it for more than 13 years.*
Conclusion*: Significant levels of lactate dehydrogenase were obtained in patients suffering from dysmenorrhoea. Research also finds that the risk of dysmenorrhoea increases if the patient has a menstrual period of more than 35 days, the level of menstrual discharge is low and the age of menarche is more than 13 years.*
Keywords: *lactate dehydrogenase level, logistic regression model; dysmenorrhea and menarche.*

Date of Submission: 23-03-2024 Date of Acceptance: 03-04-2024

I. Background

The use of logistic regression models has grown rapidly along with advances in medical science and technology (IPTEKDOK). The use of logistic regression in the field of clinical epidemiological research has been widely used in fields such as biomolecular, ecological, clinical pharmacological research. Logistic regression analysis was first carried out by Cox (2010). The logistic regression model is a linear linear model test as introduced by Nelder and Wedderburn (2012). Hosmer and Lemeshow (2000) have discussed logistic regression models.

This journal discusses the use of logistic regression models to predict endometriosis in patients. Dysmenorrhea is pain felt in the lower abdomen during menstruation. Dysmenorrhea is a pain that is often faced by women. Endometriosis can cause the patient to be unable to carry out activities. Sardjana (2018) found that 20% of patients experienced endometriosis and were unable to carry out activities. Syamsul et al (2017) reported that 10% of career women experienced severe pain due to dysmenorrhoea and were not allowed to work. Alkaff (2016) reported that 52% of students in Yogyakarta were unable to carry out daily activities properly during menstruation.

Data

This research was conducted among patients. A total of 125 patients were randomly selected to answer the research questionnaire. Five non-skewed scales were selected for analysis.

Schedule 1. Change of studies

Changes to Code	Letter	Code
Dis	experiencing dysmenorrhoea or not	
Duration 1	Menstruation	
Leng 1	Time around menstruation	
Menarche	Beginning of menarche	
Man 1	Expenditure level	
Reg	Menstruation is normal	

Logistic Regression Model

If π (x) = E (Y / x) is the min condition if a logistic distribution is used, then the logistic regression model is defined as follows:

$$\pi(x) = \frac{1}{1+\exp\left\{-\left(\beta_0 + \sum_{i=1}^{n}\beta_i x_i\right)\right\}} \qquad (1)$$

where β0, β1, ..., βn are for non-skew allowances and x1, x2, ..., x¬n are non-skew change makers.
The logit incarnation of (x), provides the logit for the logit regression model as follows:

$$g(x) = \text{Enter}\left(\frac{\lambda(x)}{1-\lambda(x)}\right) = \beta 0 + \beta 1X1 + \ldots + \beta nXn \qquad (2)$$

Results and Analysis Step 2 provides analysis statistics and two chi-square tests were conducted to determine whether there were differences between the dysmenorrhea and non-dysmenorrhea groups. From this research it is known that the level of vaginal discharge and the length of menstruation make a significant difference to dysmenorrhea. Despite menarche, the prevalence of menstruation and duration of menstruation were not significant. By using the backward logistic regression method using exclusion criteria through the probability ratio test, the following linear logistic regression model is given:

$$\pi(x) = \frac{1}{1+\exp\{\ldots\}} \qquad (3)$$

where x1 is the menstrual period, x2 is the rate of menstrual discharge, and x3 is the beginning of menarche.

Schedule 2. Students' menstrual cycle patterns

Characteristic	Dysmenorrhea n = 71	Not Dysmenorrhea n = 52	P value for chi-power test
Menarche Minimal Skillful aside 20-30 years 31-40 years old 41-50 years old	 12.86 1.23 32 24 15	 12.98 1.20 23 11 18	 0.770
Regular menstruation	58	44	0.400
Abnormal	13	7	
Cycle tempo <= 30 days > 30 days	 57 9	 35 14	 0.048
Bleeding period <= 6 days > 6 days	 42 28	 26 24	 0.383
level of menstrual discharge Many, few	 48 22	 46 6	 0.010

Then, the logit for the logistic regression model is given by:

$$g(x) = \text{Enter}\left(\frac{\lambda(x)}{1-\lambda(x)}\right) = 0.099 - 0.916x1 + 1.312x2 - 1.077x3 \qquad (4)$$

The Hosmer and Lemeshow test shows that the model fits well (the second chi-power test value is 2.847 with p-value = 0.416). Instead of Press. (3) and Eq. (4) It is known that the contributors to dysmenorthea are the length of menstruation, menstrual discharge, and the start of menarche. By looking at the odds ratio, it is known that the risk of patients experiencing dysmenorrhea is (i) 2.5 times higher in those who have a high menstrual cycle period, (ii) 3.7 times higher in those who have a small amount of menstrual discharge and (iii) three times higher in those who experienced menarche more than 13 years.

II. Conclusion

From research it is known that the prevalence of dysmenorrhoea in patients is 58% and 20% are reported to be unable to go to work because of dysmenorrhoea. Press (4) provides the logit for the logistic linear regression model. From this model it can be concluded that the three factors that influence the occurrence of dysmenorrhoea are the length of menstruation, the amount of menstrual blood discharge and the start of menarche, while the length of menstruation and the prevalence of menstruation are not significant. This decision is the same as research conducted by Andersch and Milsorm (in Ng and colleagues (2012)).

Other studies such as Harlow and Park (in Ng and colleagues (2012)) and Sundell and colleagues Ng and colleagues (2012)] found that dysmenorrhea is influenced by several changes including menarche and an increase in menstrual tempo. Research also finds that the risk of experiencing dysmenorrhoea increases if the patient has a high menstrual cycle tempo, a low level of menstrual discharge and an age of menarche of more than 13 years.

Reference

[1] Alkaf F (2016). Endometriosis Choice Therapy. Yogyakarta Bp 19 : 9-11
[2] Cox, D. R. (2010). Binary Data Analysis. London: Methuen And Co.
[3] Hosmer, D. W. And Lemeshow, S. (2010). Applied Logistic Regression, Second Edition. John Wiley & Sons.
[4] Htut, Y., Amran, A. And Shukri, Ya (2017). Study Of The Prevalence Of Dysmenorrhea In Students Of Universiti Sains Malaysia, Perak Branch Campus, Tronoh. Malaysian Medical Journal, 51: 264-269.
[5] Nelder, Ja And Weddeburn, Rwm 2012. Generalized Linear Models, Jour. Social Statistics Rpyal. A, 135: 370-384.
[6] Ng, Tr, Tan, Tc And Wansaicheong, Gk, (2012). Study Of The Prevalence Of Dysmenorrhea In Female Population Aged 15-54 Years In Clementi City, Singapore, Annals Acad. Medical. Singapore, 21(3): 323-327.
[7] Samuel H (2017). Alternative Therapy For Endometriosis. Sby, 13: 4- 5
[8] Sardjana (2018). Prevalence Of Endometriosis In Students And Female Students In Malang. Pit 2000,22: 23- 27