PREDICTING THE OUTCOME OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBE FEEDING

Dear Sir,

I read with interest the article by Chong et al[1] published in the Singapore Medical Journal regarding the use of the percutaneous endoscopic gastrostomy (PEG) tube and predicting the outcome of these patients. I agree with the authors that the use of the PEG tube is still controversial in many neurological conditions, especially in the long term. However, as most of the subjects were patients with "cerebrovascular events", any conclusions drawn will only be valid for this group of patients. There are many trials showing that PEG tube feeding is more effective than nasogastric tube feeding and this has been the standard recommendation in the guidelines of stroke management. The authors' decision to include other neurological conditions in the prediction of mortality and PEG tube weaning is also misleading, as these diseases are usually different in their course of illness. Therefore, this dilutes the effect of the predominant subject analysed. A better model would be to focus on the majority (stroke) patients that have a known similar clinical course. Readers should also be given additional information on the type (ischaemic or haemorrhagic) and severity of stroke as these have been shown to influence outcome.

There were ten variables used in the logistic regression prediction model. However, the number of events was relatively small. The analysis method is flawed and unreliable as the event per variable (EPV) ratio is too small. The accuracy, reliability, and precision of regression coefficients are assessed by calculating EPV; the ratio of the number of outcome events to the number of predictor variables. An EPV ratio of at least 10 indicates that the estimates of regression coefficients and their confidence intervals are reliable[2]. Hence, if the authors chose ten variables as predictors, the number of events must be at least 100, much more than that in the study. As a result, the statistical process was violated and quoting the p-value would not be appropriate. In terms of calibration, the authors used the Hosmer-Lemeshow goodness-of-fit test. This test is only reliable for analysing big sample sizes. As the sample size is only 109, the calibration was poor and has been incorrectly done. The p-value from this test is particularly unreliable if the sample size is less than 400[3].

It is apparent that the use of a very diverse population and a small sample size were the major limitations of this study. Furthermore, any conclusion drawn from a study with inherent methodological errors is not reliable and risky.

Yours sincerely,

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