Re: Intraprocedural Distal Embolization After Femoropopliteal Angioplasty: Is There a Role for Below-the-knee Stents? A Statistical Analysis Point of View

Yousef Shahin^{1,2}

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To the editor:

Sir, We read the article by Krokidis et al. [1] with great interest. However, their statistical analysis is inaccurate. The authors retrospectively reviewed 1485 femoral angioplasties of which 12 cases where distal embolization occurred were analysed. In the statistical analysis, Krokidis et al. used multivariable logistic regression analysis of the factors that were associated with stent deployment. The regression model included three variables: critical limb ischaemia, target vessel occlusion and single-vessel run-off. The total number of events for the outcome of interest (stent deployment) was six which resulted in sparse data bias (too many variables for few outcomes). For the multivariable logistic regression model to be valid, at least 10 events of the outcome of interest or more are needed per variable [2]. Therefore, for the regression model to be correct, 30 events or more were needed. Otherwise, there is potential for sparse data bias in addition to negative or positive regression coefficient bias within the regression model.

Evaluation of sparse data bias can be achieved by simple tabulation of the outcome or events over a group of the variables. If the potential of bias is high, Firth's penalised likelihood approach to address the small sample size in a logistic regression model is useful.

Compliance with Ethical Standards

Conflict of interest The corresponding author states that there is no conflict of interest.

References

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✉ Yousef Shahin
yousef.shahin@yahoo.co.uk

¹ NIHR Academic Clinical Fellow and Specialist Registrar in Clinical Radiology, Academic Unit of Radiology, University of Sheffield, Glossop Road, Sheffield S10 2JF, UK

² Northern General Hospital, Herries Road, Sheffield S5 7AU, UK