INVESTIGATING FACTORS ASSOCIATED WITH INCREASED RISK OF INSTRUMENTAL DELIVERY IN WOMEN WITH LABOUR EPIDURAL ANALGESIA: A RETROSPECTIVE COHORT STUDY

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AIM Epidural analgesia is the most effective form of labour analgesia, but is associated with increased risk of instrumental delivery. The primary aim of this retrospective cohort study was to evaluate factors that are associated with an increased risk of instrumental delivery.

METHODS All obstetric patients who received labour epidural analgesia for vaginal delivery in Singapore's major public maternity institution between January 2012 to December 2015 were recruited for the study. Our primary outcome was the incidence of instrumental delivery.

RESULTS Out of 17227 pregnant women in the study, 12% (n=2069) had instrumental delivery. Independent factors associated with instrumental delivery included maternal factors (nulliparity (aOR 2.97, 95% CI 2.61 to 3.39, *P*<0.0001) and advanced maternal age (aOR 1.04, 95% CI 1.03 to 1.05, *P*<0.0001). Taller maternal height (aOR 0.18, 95% CI 0.08 to 0.40), *P*<0.0001) was associated with reduced odds of instrumental delivery. Significant labour-related factors were use of prostin (aOR 1.19, 95% CI 1.07 to 1.32, *P*=0.0014), use of pre-epidural analgesia (aOR 1.16, 95% CI 1.05 to 1.28, *P*=0.0040), longer second stage of labour (aOR 1.23, 95% CI 1.20 to 1.26, *P*<0.0001), higher fetal birth weight (aOR 1.27, 95% CI 1.12 to 1.43, *P*=0.0002) and epidural performed by senior anaesthetists (aOR 1.94, 95% CI 1.72 to 2.18, *P*<0.0001). Labour epidural-related factors were presence of breakthrough pain (aOR 1.55, 95% CI 1.37 to 1.76, *P*<0.0001), denser motor block as represented by higher Bromage score (aOR 1.14, 95% CI 1.03 to 1.25, *P*=0.0097), and having epidural infusion switched off at delivery (aOR 1.18, 95% CI 1.05 to 1.32, *P*=0.0048) (Receiver operating characteristic (ROC)=0.75).

CONCLUSION This study examined factors associated with instrumental delivery using a labour neuraxial analgesia database. The multivariate model generated risk factors identifying

women at higher risk of instrumental delivery, which can help clinicians address potentially modifiable factors.