General anaesthesia for caesarean section & difficult/failed intubation - Do we have a problem?

Rosenstock CV, Nørskov AK, Lundstrøm Lff, Wetterslev J

1Department of Anaesthesiology, Nordsjællands Hospital - Hillerød - a part of Copenhagen University Hospital, Denmark
2Copenhagen Trial Unit, Rigshospitalet - a part of Copenhagen University Hospital, Denmark and the Danish Anaesthesia Database (DAD)

Background and Goal of Study
Difficult tracheal intubation (DTI) in connection with general anaesthesia (GA) for caesarean section (CS) was previously associated with a high maternal mortality rate. That caused a change in anaesthesia technique to a widespread use of regional anaesthesia (RA) for CS. GA is still used at emergency grade 1 CS if there is no time for a RA or in case of an insufficient RA.
The purpose of the study is to determine
1) the prevalence of RA and GA for CS in Denmark
2) the prevalence of DTI and failed intubation at GA for CS
3) Anaesthesiologists ability to anticipate DTI among CS patients registered in the Danish Anaesthesia Database (DAD)

Material and Methods
The Ethic Committee for Biomedical Research, Capital Region of Denmark approved the study. A cohort of 20507 CS patients was drawn from the DAD from June 2008 to June 2011.
Data for the preoperative anticipated DTI and the associated airway management plan were compared with the actual airway management. Diagnostic precision for anticipated DTI was determined as sensitivity, specificity, positive- and negative predictive value, positive-and negative likelihood ratio and diagnostic odds ratio.

Results
The prevalence of GA for CS was 9.6%, 95% CI (9.3-10) (table 1). Table 2 shows the distribution of CS according to Emergency/Elective grade. The prevalence of DTI was 1.8%, 95% CI (1.3-2.5) of which 93% was unanticipated DTI (table 3).
The prevalence of failed intubation was 1 per 130 general anaesthetics. Anaesthesiologists' diagnostic precision for anticipation of DTI had a sensitivity of 0.07, specificity of 0.99, positive predictive value of 0.25, negative predictive value of 0.98, positive-and negative likelihood ratio 18.4 and 0.94, respectively. Diagnostic odds ratio was 19.6 (table 3).

Discussion
The prevalence of GA for CS in Denmark was twice to three times as high compared with the UK, USA and Canada, respectively. The prevalence of DTI was similar to the prevalence of DTI amongst a mixed surgical population registered in the DAD.
The prevalence of failed intubation was 1 per 130 general anaesthetics. Some authors see a high prevalence of GA for CS advantageous since it secures Anaesthesiologists’ airway management skills.
It is mandatory in Denmark to have a consultant in Anaesthesia’s present at CS, but this had no effect on the rate of failed intubation that was 50 to 100% higher than in previous studies.

Contact
Rosenstock, CV • Department of Anaesthesiology • Nordsjællands Hospital • DK-3400 Hillerød, Denmark • Mail: Charlotte.Rosenstock@regionh.dk • www.nordsjaellandshospital.dk