Central Manchester University Hospitals NHS
NHS Foundation Trust

Conversion from regional to general anaesthesia for Caesarean section: A six year audit

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St Mary's Hospital, April 2013

Introduction

- General anaesthesia (GA) in pregnancy is associated with a higher incidence of complications compared to the general population
  - Aspiration
  - Awareness (0.26%[1] vs 0.1-0.2%)
  - Failed intubation (1 in 224[2] vs 1 in 2230[3])
- General anaesthesia for Caesarean section (CS) is associated with increased blood loss compared to regional anaesthesia (RA)[4]
- Conversion from regional to general anaesthesia exposes the parturient to the complications of both techniques

Audit standards

Royal College of Anaesthetists Guidelines[5]:

	Category 1	Category 1-3	Category 4
CS under RA	> 50%	> 85%	> 95%
RA to GA conversion	< 15%	< 5%	< 1%

Method

- We studied conversion rates from RA to GA over a 6 year period from April 2006 to March 2012
- We used the Ciconia Maternity information system (CMIS) to identify all women who had received multiple anaesthetic interventions during the study period
- We looked specifically at these interventions on CMIS and RECALL to identify patients in whom conversion from RA to GA for CS had occurred, and the reasons for this

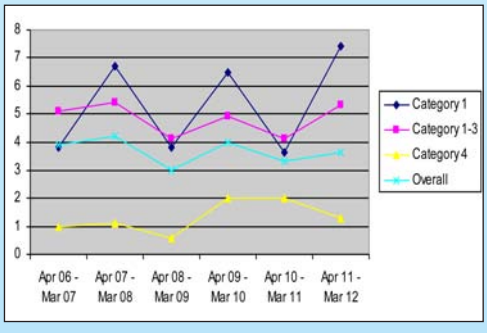
Results

- Overall 6,707 CS were carried out in the study period
- The CS rate was 19.6%

Conversion rates from RA to GA

	Category 1	Category 1-3	Category 4	Total
Conversion from RA to GA	5.4% (111)	4.8% (215)	1.4% (31)	3.7% (246)
Recommended standards	< 15%	< 5%	< 1%	

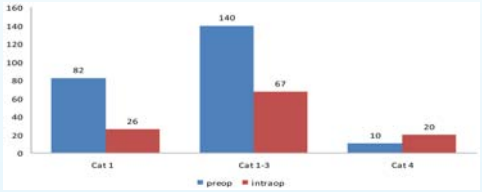
Conversion rate per year



Reasons for conversions

Rank	Category 1	Category 1-3	Category 4
1	Speed	Epidural failure	Spinal failure
2	Epidural failure	Spinal failure	CSE failure
3	Spinal failure	Speed	Prolonged surgery
4	Unable to site spinal	Unable to site spinal	Massive PPH / Unable to site spinal

Pre op vs intra op conversions

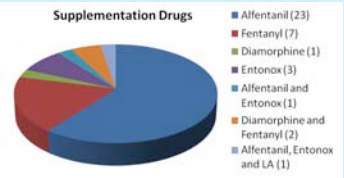


Conversions by month

No statistically significant difference between months (p=0.68)

Supplementation

Overall, 15% patients received analgesic supplementation prior to the conversion to GA

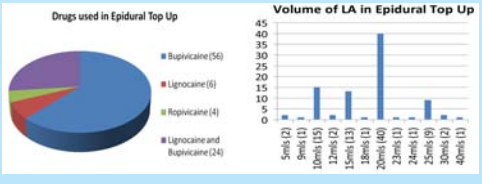


Drugs used for spinals

- 37% patients were converted from a spinal
- All were given 0.5% heavy marcaine
- 89% were given diamorphine
- 8% were given morphine
- 1 patient was given clonidine
- 2 patients had no adjuvant

Drugs used for epidurals

37% had an attempted epidural top up

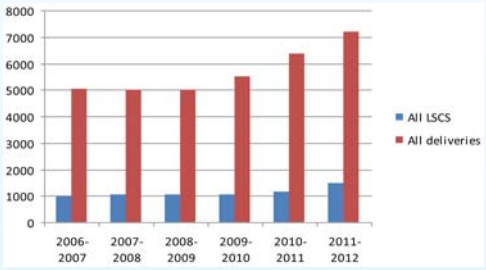


Completing the audit loop

- Conversion rate previously audited for the year 2005 - 06

	Category 1-3	Category 4
2005 - 06	5.6%	1.3%
2006 - 12	4.8%	1.4%
Recommended standard	< 5%	< 1%

Increase in deliveries at St Mary's



Summary

Category	Conversion rate (%)	RA rate (%)	Most common reason	Timing of conversion	Most senior anaesthetist
1	5.4	76.3	Speed	Pre-operatively	ST3+
1-3	4.8	84.6	Epidural failure	Pre-operatively	ST3+
4	1.4	95.1	Spinal failure	Intra-operatively	Consultant

Discussion

- We achieved low RA to GA conversion rates for non-elective CS
- We did not achieve the recommended conversion rate for elective CS
- Factors likely to prolong surgery hence making conversion to GA more common include:
  - Grand multips
  - Teaching during elective lists (by anaesthetsists and obstetricians)
  - Complex comorbidities eg. placenta accreta.

Recommendations

- Trouble shoot epidurals in labour
- ? More familiarity with ultrasound might reduce incidence of failure to site spinals
- ? Consider CSE if potential for prolonged long surgery (but complications much higher in NAP3)
- Ensure adequate assessment of block prior to surgery using touch to T5[6]

References

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Acknowledgments

Tanviha Quraishi for her help with the statistics