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Research Protocol

An Audit on Operative Vaginal Delivery and Associated Maternal and Neonatal Outcomes

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Abstract

Assisted vaginal birth is a vital health intervention that can result in better outcomes for mothers and their babies when complications arise in the second stage of labour. The purpose of operative vaginal births (OVD) is to expedite delivery to reduce the risk of maternal or neonatal complications. This was a retrospective review of all patients who underwent a trial of, or an OVD between March 2021 - December 2021 in the local teaching hospital in Malta. The audit investigated the indication/s whether safety criteria set out by the Royal College of Obstetricians and Gynaecologists (RCOG) were met, and any maternal and neonatal complications associated with OVD. Based on our results, we have a very high success rate of OVDs with a bare minimum of major complications and complying with all the RCOG safety standards.

Keywords: *Operative Vaginal Births (OVD); Royal College of Obstetricians and Gynaecologists (RCOG); Assisted Vaginal Birth*

Introduction

Prolonged second stage of labour is a common indication for a caesarean section; however, many of these caesarean sections could be prevented by the use of operative vaginal delivery (OVD), with vacuum extraction being the method of first choice.

Compared with caesarean section, vacuum extraction is associated with a lower risk of infection and haemorrhage, shorter decision-to-birth interval, and lower rates of birth asphyxia, intrapartum stillbirths, and severe maternal morbidity. The goal of operative vaginal delivery is to mimic spontaneous vaginal birth, thereby expediting delivery with a minimum of maternal or neonatal morbidity.

OVD may be indicated in fetal compromise, maternal exhaustion, pre-existing maternal conditions to avoid Valsalva, or lack of progress.

Safety criteria in OVD should include a full abdominal and vaginal examination, adequate preparation of the mother and staff as set out by the Royal College of Obstetricians and Gynaecologists (RCOG) in the Green-Top Guideline No. 26 in April 2020.

Aim of the Study

The aim of this audit was to compare our current local practice to the standards set out in the Green-top guideline No. 26 in April 2020.

Methodology

A retrospective review of all patients who underwent OVD, or a trial of, between March 2021 - December 2021 were included in this audit. The proforma included maternal demographics, details of delivery, pre-requisites for OVD, procedure, outcome of procedure, and associated maternal + fetal outcomes.

A total of 165 patients were eligible for inclusion in this audit. A total of 140 patients were included as the rest had missing documentation.

Results

The majority of patients were primigravida (87%) and the rest were multiparous. 98.6% of the cohort were at term, with another patient at 29 weeks, and the other at 36 weeks.

The majority of instrumental deliveries were carried out with the metal cup (78.6%), with another 18.6% performed using the Kiwi cup. Only 1 delivery was carried out using only forceps. In three cases, two sequential instruments were used - in two patients forceps and ventouse were used and in another patient a metal ventouse followed by kiwi were used.

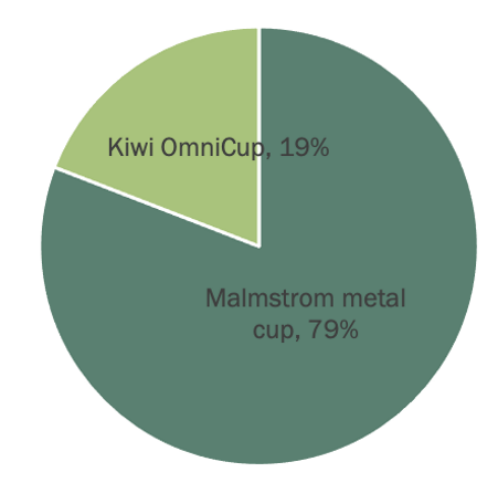

Figure 1

The majority had pathological or suspicious CTG (66%) and 34% had a normal CTG.

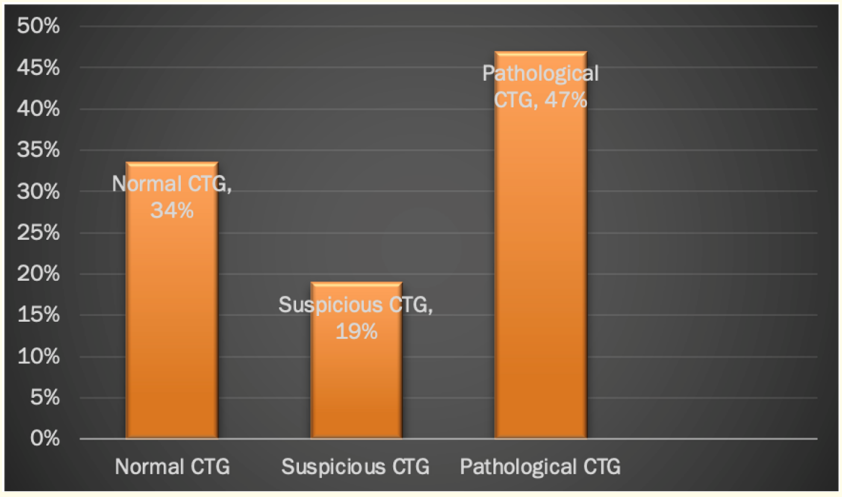

Figure 2

The most common reason for OVD was presumed fetal compromise followed by inadequate progress in nullip patients.

In terms of safety criteria, informed consent was obtained in 91% of cases. In all cases, the indication was recorded, a full abdominal and vaginal examination, good bladder care, adequate analgesia, and a fully competent operator was present.

In 60% of cases, antibiotics were given at time of procedure, and 75% had cord gases taken.

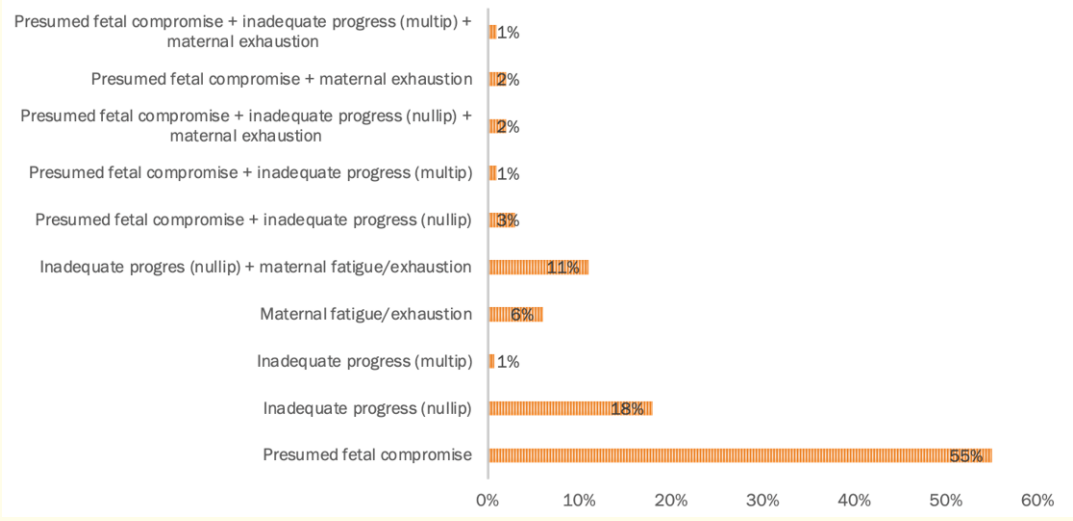

Figure 3

	%
Informed consent	91
Indication recorded	100
Full abdominal and pelvic examination	100
Bladder care recorded	100
Adequate analgesia	100
Operator fully competent (HST/RS)	100
Decision to delivery interval	100
Antibiotics given at time of procedure	60
Cord gases taken	75
Cord gases in presumed fetal compromise	80
Paediatrician present/informed	100

Figure 4

52% of our patient cohort suffered from a perineal tear, with only 7.1% having a 3rd degree tear or above.

4.3% of neonates required NPICU admission. Only 2 neonates had a 1st minute Apgar less than 5 and a further 5 more had a 5th minute Apgar < 7.

Discussion of Results

Overall, this audit shows that we are complying with RCOG guidelines for OVD. Safety criteria are being followed. An area for improvement would be documentation of paired blood gases and administering a shot of IV antibiotics during the procedure as per the latest guideline. Only a minority of patients had major complications - 7% had a 3rd-degree tear or above, and a further 7% suffered from primary PPH.

Conclusion

The commonest indication for OVD was delay in second stage in primiparous women and due to fetal distress. Despite the high incidence of OVD there were no major maternal or neonatal morbidity or mortality.

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