

Carboprost: A safe second-line option in managing abortion and intrauterine fetal death?

Jenna Frizelle, Jessica Southward, Dyan Dickins. Liverpool Women's NHS Foundation Trust



Liverpool Women's
NHS Foundation Trust

Introduction

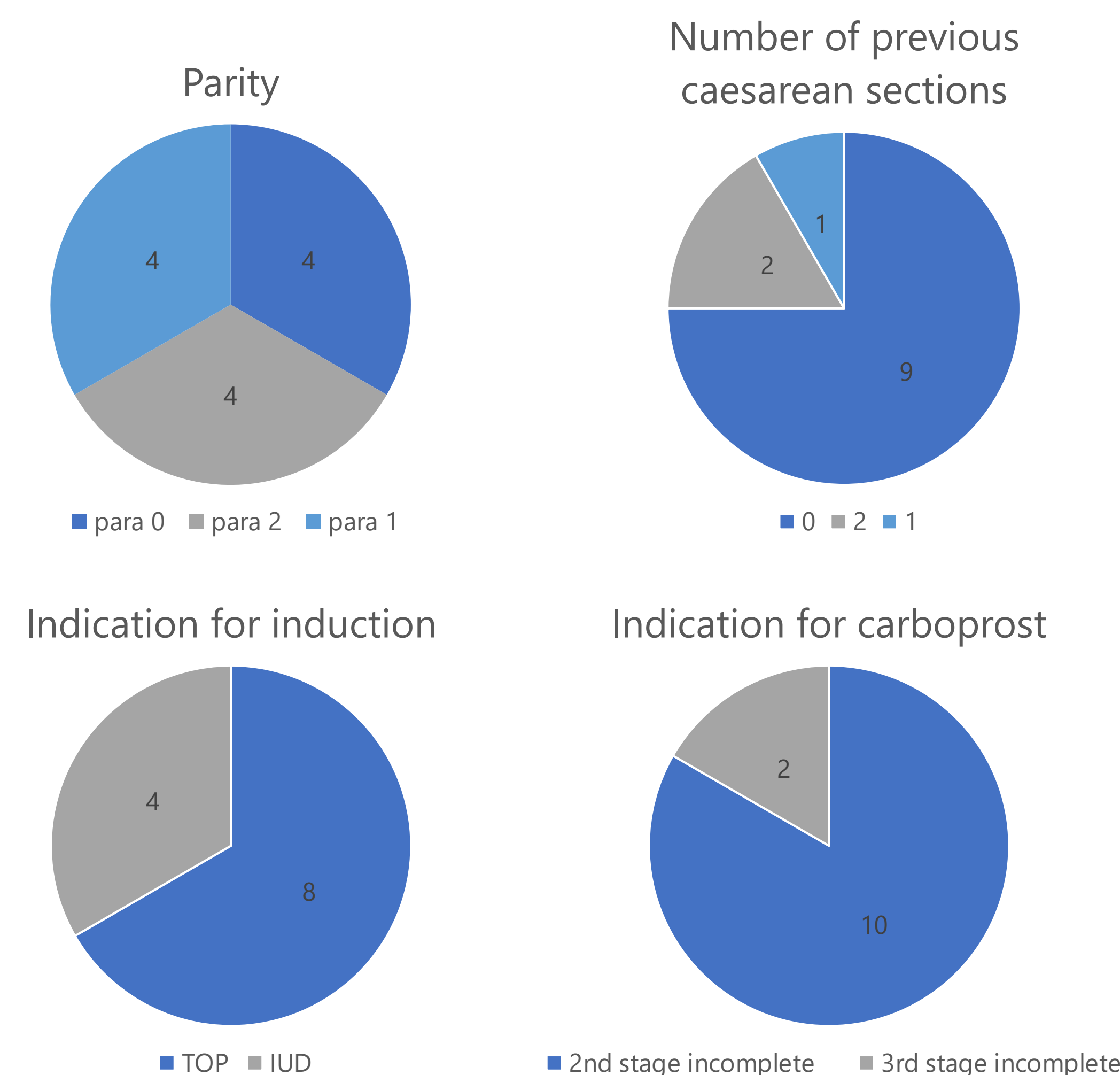
In the UK, current guidelines recommend inducing labour with mifepristone followed by a course of misoprostol for patients who have experienced an intrauterine death and those undergoing a termination of pregnancy for medical reason after 16 weeks. For patients with a previous caesarean section scar, the dose of misoprostol is reduced due to the risk of scar rupture. There is little evidence base to guide what treatment is appropriate if first line medical management has been unsuccessful. Options commonly utilised are repeated courses of misoprostol or surgery. Surgical options include hysterotomy or dilatation and evacuation. Both options carry increased risk of maternal morbidity and many clinicians will have little or no experience in performing dilatation and evacuation. We present a case series using intramuscular carboprost ($\text{PGF}_{2\alpha}$) when first line treatment has been unsuccessful.

Method

This was a retrospective case review from September 2014- March 2020. Electronic patient records were searched to identify patients who had undergone medical treatment for termination of pregnancy or intrauterine fetal death after 16 weeks. These results were further refined to include only those who had also received intramuscular carboprost. Patients who had received carboprost for the management of post-partum haemorrhage were excluded. The remaining 12 sets of case notes were obtained and data collected using a standardised data collection proforma

Results

There were 12 cases identified over the study period. 4/12 patients were nulliparous and the remaining 8 patients were evenly divided between para 1 and 2. 3/12 patients had at least 1 previous caesarean section. The gestational age at delivery ranged from 16 weeks 0 days to 32 weeks 4 days, with a mean gestational age of 21 weeks 6 days. 8/12 patients were undergoing termination of pregnancy for medical reason and 4/12 medical induction due to intrauterine fetal death. For further analysis of results, patients have been divided into those where carboprost was given prior to delivery of the fetus (10/12) and those where carboprost was given after delivery of the fetus to achieve delivery of the placenta (2/12).



Snapshot of results

- **Delivery achieved in 100%**
- **Average number of carboprost doses=2.6**
- **Average time to delivery after 1st carboprost dose= 7 hours 37 minutes**
- **Average blood loss= 483mls**
- **No scar ruptures**
- **No serious complications**

Results 1: Patients requiring treatment with carboprost to achieve delivery of the fetus

The 10/12 patients receiving carboprost to achieve delivery of the fetus includes the 3 patients who had had a previous caesarean section. In this group, 8/10 had completed 2 cycles of misoprostol and 2/10 had completed 3 cycles of misoprostol which had not resulted in delivery. Carboprost was given intramuscularly at a dosage of 250mcg and at an interval of 2-4 hourly. Treatment with carboprost was successful in achieving delivery of the fetus in 100% of cases. The number of doses given to achieve delivery ranged from 1-8, with a mean number of doses of 2.6.

The time interval between the administration of the first dose of carboprost and the delivery of the fetus ranged from 83 minutes to 1465 minutes, with an mean of 457 minutes (7 hours 37 minutes).

There were no serious complications related to the use of carboprost, including no maternal deaths, no ITU admissions and no uterine ruptures. There was 1 patient who required hysterotomy due to retained placental tissue and intraoperatively was diagnosed with placenta accreta. In this case, estimated blood loss was 3000mls. In the remaining cases, the average estimated blood loss was 483mls (range 100-1100ml). 4/10 patients required transfer to theatre for examination under anaesthetic and manual removal of placenta.

Results 2: Patients requiring carboprost to achieve delivery of the placenta

In the 2/12 patients requiring carboprost to achieve delivery of the placenta, each patient received 1 dose of carboprost. The time from administration of carboprost to delivery of the placenta was 24 minutes in the 1st case and 4 hours in the 2nd case. Blood loss was estimated at 250ml and 300ml. There were no complications reported.

Conclusions

This case series demonstrates that when first line medical management has been unsuccessful, intramuscular carboprost is a safe and effective treatment option which avoids the need for surgical management in the majority of cases of termination of pregnancy or intrauterine fetal death, although there does appear to be a higher than expected rate of manual removal of placenta. Further research is needed to determine the optimal dose and schedule of administration of carboprost.