

Effect of synchronous administration of vaginal misoprostol and foley’s balloon catheter vs vaginal misoprostol in induction of labour : A mini review

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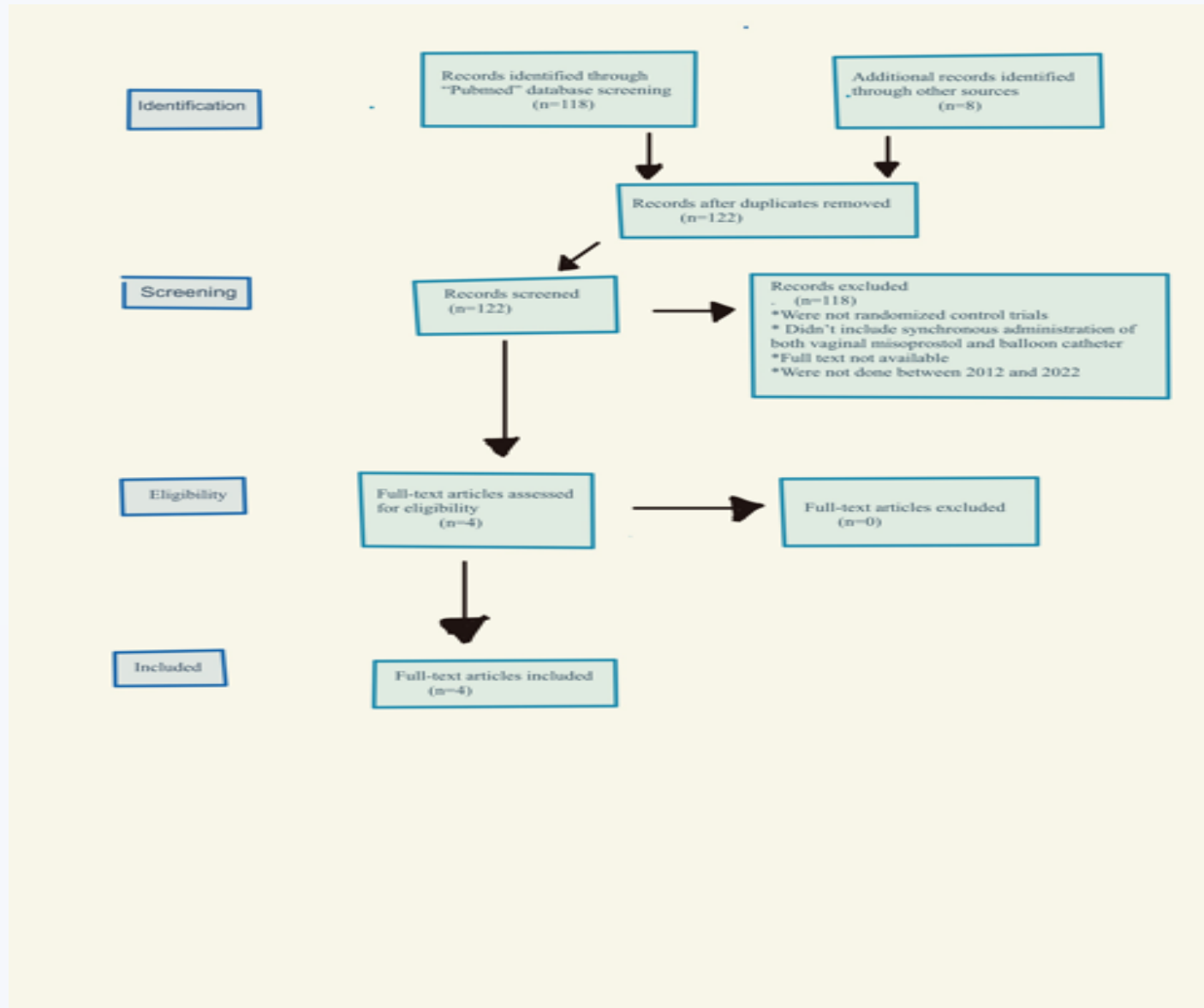
INTRODUCTION

NICE, (2021) recommend the use of pharmacological methods like vaginal dinoprostone, misoprostol or mechanical methods like osmotic cervical dialator or balloon catheter for induction of labour in cases with Bishop score six or less (NICE,2021).Vaginal misoprostol is widely used and can induce labour within 24 hours but is associated with adverse effects(Weeks et Al,2022). The mechanical methods tends to take longer but have fewer side effects (Weeks et Al,2022). Now, the question arise if combining both methods can bring down the time to delivery and the adverse effects. This mini review aim to compare the time from intervention to delivery with combined use of misoprostol and catheter over the sole use of vaginal misoprostol.

MATERIALS AND METHODS

- Search of databases like “Pubmed” , “clinical trials.gov” using “Foley balloon catheter” AND “Vaginal misoprostol”
- Four randomised control trials which used vaginal misoprostol (25 micrograms) and balloon catheters (16 or 18 Fr with 30ml saline) synchronously were included to maintain uniformity.
- All had a bishop score less than or equal to six (NICE,2021) prior to induction.
- A total of 689 pregnant ladies with 346 in the test group and 343 in the control group were included.
- A flowchart describing the whole process is given in the next session.

FIGURE 1;



The baseline characters of all the four studies . FIGURE 2;

Study	Location + Duration	Inclusion criteria + Gestation age (CA) Bishop's score (BS) and others	Exclusion criteria	Indication for IOL	Sample size, Gestational age at randomisation (GAR)	Combined catheter/misoprostol dosing	Only Misoprostol dosing
Aduloju O.P,2017	Ado-Ekiti, Nigeria, From Se, 2014- Aug,2015	BS : <6, GA: at term with singletons, cephalic, intact membranes	GA <37weeks, IUD previous surgery of uterus, PROM, multiple pregnancy	Post due date, IUGR, Diabetes, hypertensive disorders	B+M : 70, GAR: 40.0+ 1.6, M: 70, GAR: 40.0+ 1.3	16Fr foley's with 30 ml saline + 25ug misoprostol vaginally (6 doses max)	25ug misoprostol vaginally/ 6h (6 doses maximum in 24 h)
Lanka S,(2014)	Hyderabad,India, For Two years	BS : 4 GA: 28wk singletons, cephalic, intact membranes	Gravidity >5, ROM, multiple pregnancy, big baby, allergies to latex, non reassuring FHR, spontaneous labour	Post dated pregnancy	B+M : 63, GAR: 39.1+1.5, M: 63, GAR: 39.3+1.7	16Fr foley's with 30 ml saline + 25ug misoprostol vaginally (6 doses max)	25ug misoprostol vaginally/ 4h (6 doses max)
Levine L.D,(2016)	Philadelphia, USA, From May 2013- June 2015	BS: 6, GA: 37wks, singletons, intact membranes, cephalic	IUD, contraindication to vaginal delivery, fetal anomaly, non-English and medical conditions like HIV, IUGR etc	Diabetes, hypertensive disorders, post term, previous history of medical morbidity	B+M : 123, GAR: 39.6, M: 120, GAR: 39.1	18 Fr foley's with 30ml saline for 12 hrs + 25ug misoprostol vaginally (5 doses max)	25 ug misoprostol vaginally/3 h (5 doses max)
Osoti A,(2018)	Nairobi and other hospital referrals, Kenya, From Feb-May, 2016	BS: 5 GA: 28wks, singletons, intact membranes, cephalic	Favourable BS, IUGR, previous US CS or other uterine surgeries, multiple pregnancies, big baby, no reassuring FHR	Hypertensive disorders, post term, gestational diabetes, IUD, no vaginal delivery contraindications	B+M : 90, GAR: 28-39 wks, M: 90, GAR: 28-39 wks	18 Fr foley's with 30 ml saline + 25ug misoprostol vaginally (4 doses max)	25 Aug misoprostol vaginally/ 4h (4 doses max)

RESULTS

- In the maternal outcomes time from induction to delivery in hours (Figure 3,4) and also the percentage of women who had undergone cesarean delivery (Figure 5,6) were compared.
- All four studies showed that they delivered within 24 hrs and the time in the test group were lower than control.(Figure 3,4)
- The percentage of women who undertook cesarean section following unsuccessful induction in the test group was lower in one study, equal in one and higher in two studies compared to control(Figure 5, 6)
- In the neonatal outcomes, percentage of babies that required intensive care admission in the test group, was lower in two studies, equal in one and greater in one compared to control (Figure 7,8)

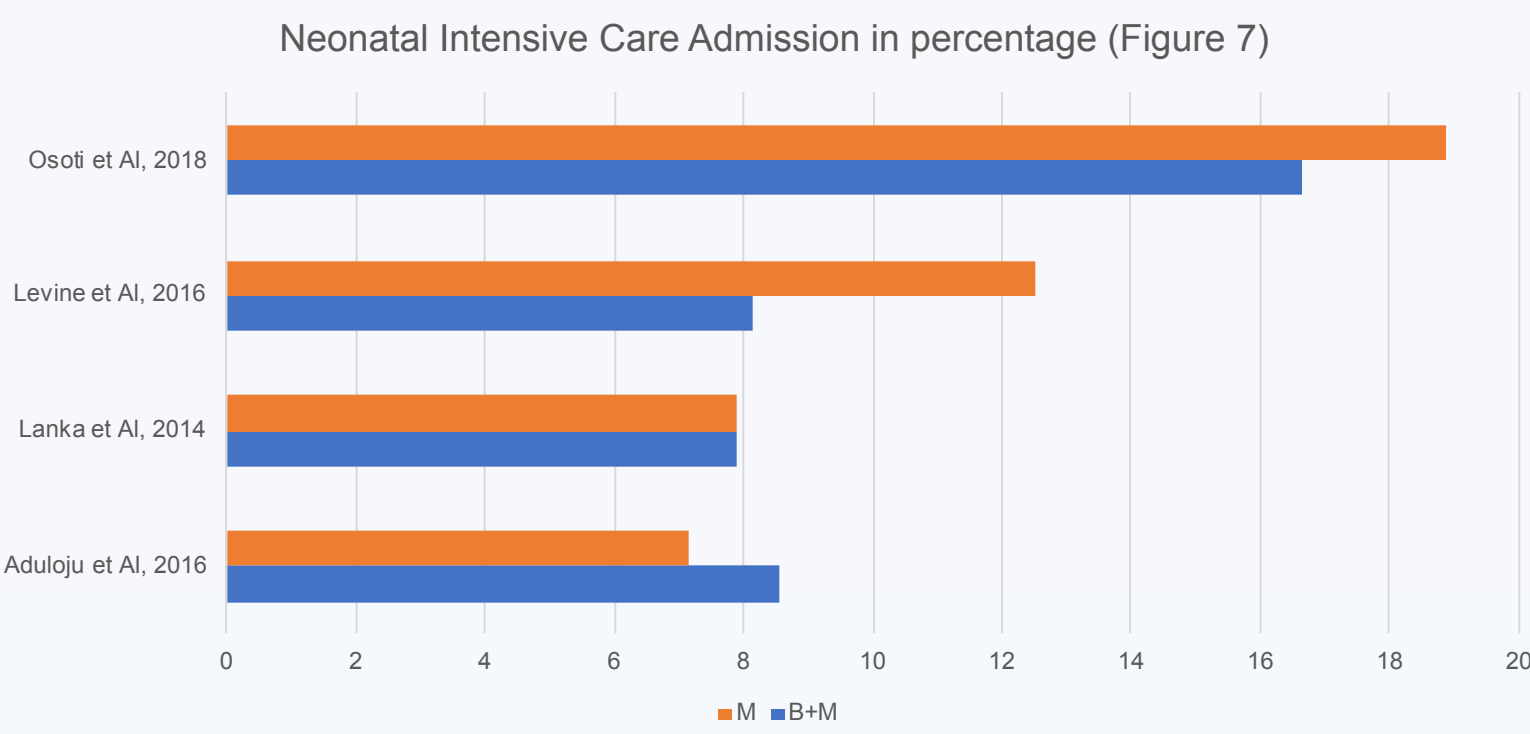
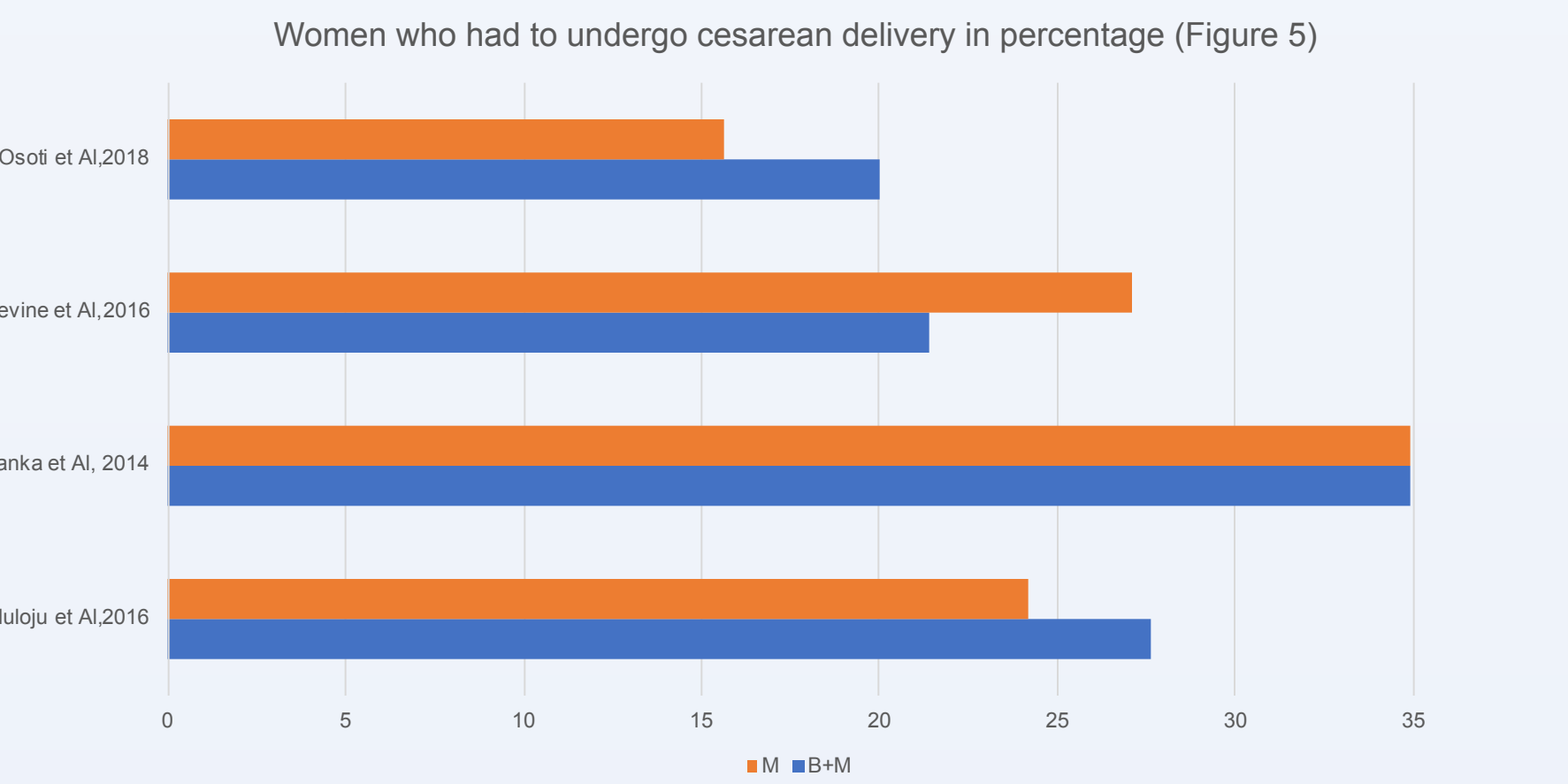
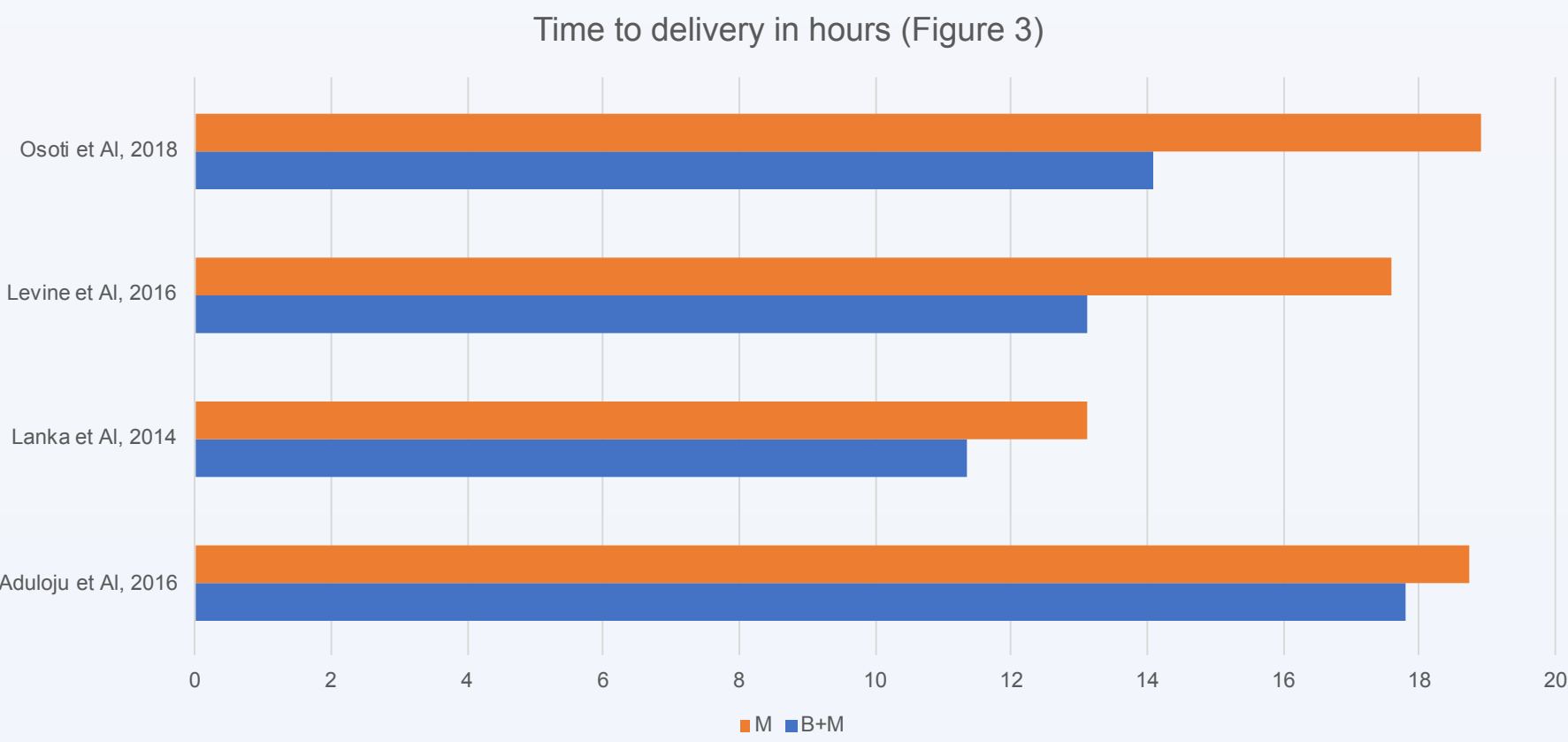


FIGURE 4; Time of delivery in hours.

Study	B+M	M
Aduloju et Al, 2016	17.79	18.74
Lanka et Al, 2014	11.34	13.12
Levine et Al, 2016	13.1	17.6
Osoti et Al, 2018	14.1	18.9

FIGURE 6: Percentage of women who ended up with caeserean

Study	B+M	M
Aduloju et Al,2016	27.6	24.2
Lanka et Al, 2014	34.92	34.92
Levine et Al,2016	21.4	27.1
Osoti et Al,2018	20	15.6

FIGURE 8: Percentage of babies who ended up in NICU

Study	B+M	M
Aduloju et Al, 2016	8.57	7.14
Lanka et Al, 2014	7.9	7.9
Levine et Al, 2016	8.13	12.5
Osoti et Al, 2018	16.66	18.88

CONCLUSION

- The combined use of balloon and misoprostol brings down the time from intervention to delivery. Synchronous administration thereby have an advantage over sole use of vaginal misoprostol with higher side effects.
- In case of failure culminating in cesarean or adverse neonatal outcomes more studies need to be evaluated.

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FOOTNOTES

+ M : Balloon catheter with 30 ml saline + Vaginal misoprostol (25ug)
M : Vaginal misoprostol(25ug)
IUD: intrauterine death
IUGR: Intrauterine growth restriction
FHR : Fetal heart rate
PROM : Premature rupture of membranes.
RCOG : Royal College Of Obstetricians and Gynaecologists