



STUDY OF INTRANATAL RISK FACTORS ASSOCIATED WITH MECONIUM ASPIRATION SYNDROME.

Dr. Vibhuti Vaghela	Assistant Professor, Department of Paediatrics, SMIMER, Surat.
Dr. Falguni Chaudhary	Tutor, Department of Paediatrics, SMIMER, Surat.
Dr. Sachin Patel*	Second Year Resident, Department of Paediatrics, SMIMER, Surat. *Corresponding Author
Dr. Dhaval Rathod	Second Year Resident, Department of Paediatrics, SMIMER, Surat.
Dr. Hina Kuvadiya	Senior Resident, Department of Paediatrics, BJMC, Ahmedabad.

KEYWORDS :

INTRODUCTION

- Meconium aspiration syndrome is one of the most common cause of respiratory distress in term and post term infants. The overall frequency of meconium stained amniotic fluid varies between 5% and 25%. MAS occurs in about 10% of infants born through MSAF.
- Infants born through MSAF are 100 times more likely to develop respiratory distress compared to their counterparts born through clear amniotic fluid. Passage of meconium in utero in vertex presenting babies is suggestive of fetal distress and occurs due to placental dysfunction, post mature or small for dates babies and antepartum hemorrhage.
- The condition is uncommon in infants below 34 weeks of gestation. thickly stained amniotic fluid and particulate matter (pea soup appearance) and yellow staining of skin, cord and nails are associated with greater risk of development of MAS.

OBJECTIVE

- intranatal factors associated with meconium aspiration syndrome.

MATERIALS & METHODS

Study Setting:

- A prospective case-control study of neonates who developed MAS in tertiary care centre attached with a medical college.

Study Design:

- This was a prospective case-control hospital based observational study.
- This study was conducted to find out intranatal risk factors associated with meconium aspiration syndrome.

Sample size:

- 187 (calculated by considering the population of patients of meconium stained liquor, Medical College, Surat)
- Population size (for finite population correction factor or fpc) (N=1200)
- Hypothesized % frequency of outcome factor in the population (p) =9.16%+5
- Confidence interval as % of 100(d)=5%
- Design effect=1
- Sample size=187 at confidence level of 99%

Inclusion criteria of case (MAS)

New-born babies with meconium stained liquor with one of the following features

- Presence of retraction or grunting;
- Babies requiring supplemental oxygen or ventilation;
- Radiological evidence suggestive of meconium aspiration syndrome

Exclusion criteria of case and control

- Hyaline membrane disease.

- Congenital Pneumonia.
- Congenital Heart disease

OBSERVATIONS & RESULTS

- Total number of deliveries were 7970, out of which 1170 deliveries had meconium stained amniotic fluid (MSAF).
- Total 200 patient of MSAF have been enrolled in study. Among total 200 patients of MSAF, 52 developed MAS.

Proportion of MAS amongst MSAF babies

Total no. of MSAF	Total no. of MAS	Percentage
200	52	26%

Association between sex of the baby and MAS

GENDER	CASE (N=148) (MAS)	CONTROL (N=148) (NO MAS)	TOTAL	P VALUE
MALE	30 (58%)	76 (51%)	106	0.43
FEMALE	22 (42%)	72 (49%)	94	

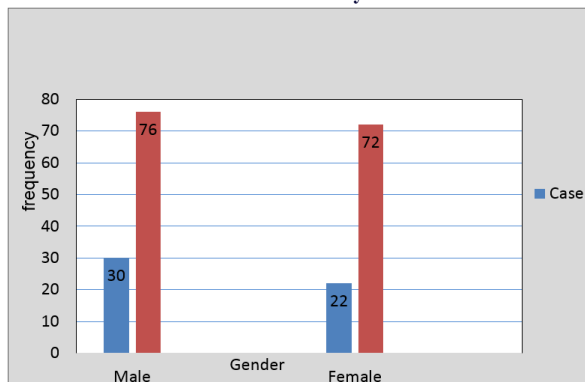
Odds Ratio=1.29

95% Confidence interval=0.68-2.44

Out of the 52 patients who developed MAS, 58% were male and 42% were female. Amongst those who did not develop MAS, 51% were male and 49% were female.

A statically not significant association was found between Gender and Development of MAS in the patients (p>0.05)

Association between sex of the baby and MAS



Intra natal risk factor

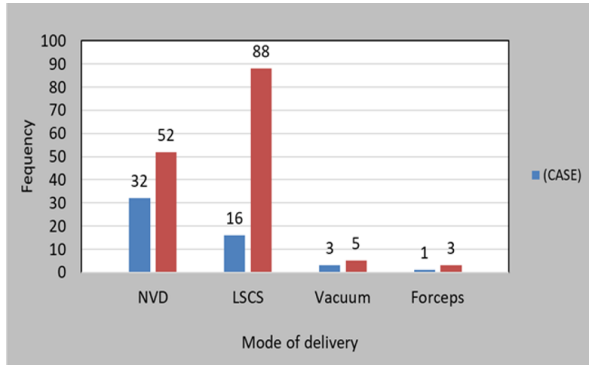
Association between mode of delivery and MAS

Mode Of Delivery	MAS (Case) (N=52)	MSAF (Control) (N=148)	Total (200)	P Value	Odds ratio	95% confidence interval
NVD	32(61%)	52(35%)	84	0.0009	1.84	0.18-18.52

LSCS	16(31%)	88(59%)	104	0.0003	0.54	0.05-5.57
VACUUM	3(6%)	5(4%)	8	0.72	1.80	0.12-26.19
FORCEPS	1(2%)	3(2%)	4	0.59	reference	reference

In this study, MAS was more common in NVD (61%) patients, as compared to LSCS delivery(31%), while in the patients not having MAS 59% patients were born by LSCS and 35% of the patients were born by NVD.

A statistically significant association was found between Mode of Delivery and Development of MAS in the patients (p<0.05).



Association between NST and MAS

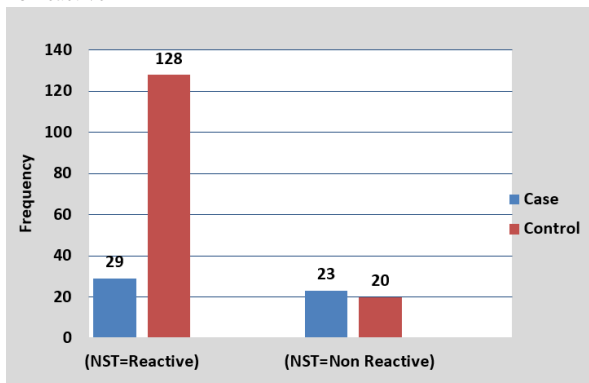
NST	Case (n=52)	Control (n=148)	Total (200)	P value
(NST=NON REACTIVE)	23(44%)	20(14%)	43	0.000003
(NST=reactive)	29(56%)	128(86%)	157	

Chi square = 21.51

Odds Ratio=5.07

95% Confidence interval=2.46-10.45

In the present study, 44% of those who developed MAS had a nonreactive



NST while only 14% had a nonreactive NST in who did not develop MAS.

While 56% of those who developed MAS had a reactive NST and 86% had a reactive NST in who did not develop MAS. From the above given data, we can infer that babies with a prior nonreactive NST have a higher chance of developing MAS.

A statistically significant association was found between Non-Reactive NST and Development of MAS in the patients (p<0.05).

Association between Fetal distress and MAS

Fetal distress	Case(n=52)	Control (n=148)	Total(200)	P value
Yes	23(44%)	20(14%)	43	0.000003
No	29(56%)	128(86%)	157	

Chi square = 21.51

Odds Ratio=5.07

95% Confidence interval=2.46-10.45

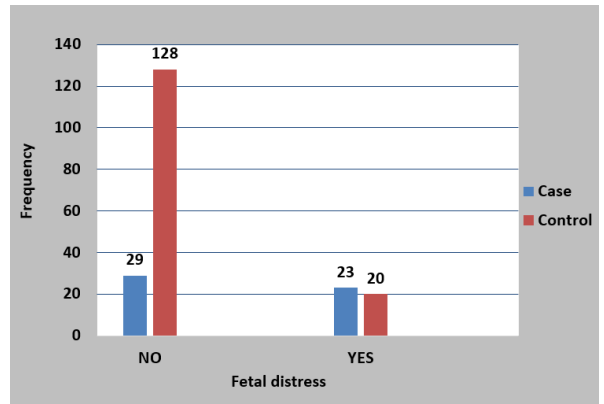
In the present study, 44% of those who developed MAS had a fetal distress while only 14% had evidence fetal distress in who did not develop MAS.

while 56% of those who developed MAS did not have fetal distress and

86% did not have any fetal distress in who did not develop MAS.

A statistically significant association was found between Fetal distress and Development of MAS in the patients (p<0.05).

Association between Fetal distress and MAS



Association between Stages of labour and MAS

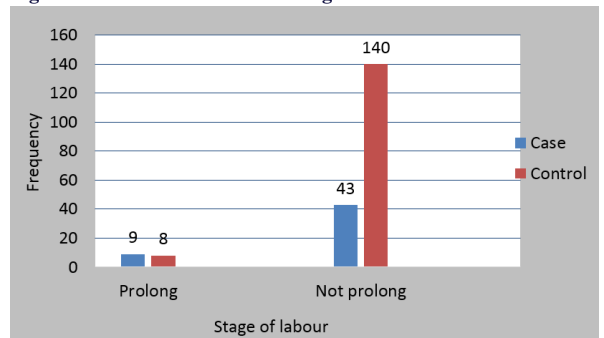
Fetal distress	Case(n=52)	Control(n=148)	Total(200)	P value
Yes	23(44%)	20(14%)	43	0.000003
No	29(56%)	128(86%)	157	

Odds Ratio = 3.663

95% Confidence interval = 1.33-10.07

In this study, 17% of those who developed MAS had prolonged IInd stage labour while only 5% had evidence of prolonged IInd stage labour who did not develop MAS. Of those, 95% did not have prolonged IInd stage of labour who did not develop MAS while 83% did not have prolonged IInd stage of labour who develop MAS. From the above given data, we can infer that babies with a history of prolonged IInd stage of labour have a higher chance of developing MAS; which was found to be statistically significant (p<0.05).

Figure 13 : Association between Stages of labour and MAS



RESULT & CONCLUSION

- Total 200 patients were enrolled, out of which 52 patients developed MAS. The incidence of MAS in the present study was quite high- 26%.

Intranatal risk factors

- In Mode of delivery, NVD and Non-Reactive NST was correlated significantly with development of MAS.
- A history of prolonged IInd stage of labour was correlated significantly with development of MAS which was found to be statistically significant (p<0.05).

CONCLUSION:

- Intra-natal risk factors such as prolonged IInd stage of labour, non-reactive NST, and normal vaginal delivery are more prone to development of MAS.

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