**Prophylactic Antenatal Corticosteroid Administration Before Elective Cesarean Delivery at or Near Term to Improve Perinatal Outcome**

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**Abstract**

To evaluate whether giving the recommended prophylactic course of dexamethasone before delivery reduces the occurrence of neonatal respiratory morbidities and the need for NICU admission after elective cesarean delivery between 37and 39 weeks. This is a randomized retrospective cohort study conducted at the NICU of Benha children hospital during the period started from November 2017. It reviewed the medical record of100 neonates delivered by elective cesarean section at the period between 37and 39weeks gestation after uncomplicated pregnancy and admitted to NICU due to respiratory morbidities that occur commonly after elective cesarean delivery specially TTN . The neonates were divided into 2 exposed groups whose mothers received prophylactic antenatal dexamethasone either single dose [group 2] or repeated doses [group 3], and non-exposed group [group 1] who’s mothers did not receive dexamethasone . Neonatal respiratory morbidity was compared between the three groups. Data was analysed using SPSS 19.There was no significant difference between the corticosteroid exposed groups and non-exposed groups regarding admission to NICU [*p*= o.570], respiratory distress syndrome [no cases of RDS have been recorded], transient tachypnea of the neonate [*all cases in different groups were RD due to TTN],* need for mechanical ventilation [*p*=0.701], final outcome, and length of hospital stay . Therefore no correlation between antenatal corticosteroid administration before elective cesarean delivery at or near term and neonatal respiratory outcome [P value=0.388].Prophylactic antenatal corticosteroid for elective cesarean delivery between 37 and 39 weeks is not effective in improving neonatal outcomes.

**Key Words:** Elective cesarean delivery – Antenatal corticos- teroid – Neonatal respiratory distress.

**1.Introduction**

There may be a climbing pattern towards elective cesarean segment [CS] around the world in the previous decades. The significant commitment may be pervious scar because of intense decrease in trial of vaginal conveyance following c's. Encountered with urban decay because of deindustrialization, innovation developed, government lodgin scar [34% focuses for every year from 2000 on 2009]. 1,2 other purposes behind this expanded pattern would elective cesarean to breech presentation Also maternal demand.

Sensational decay to trial of scar is likely because of those alarm that trial about Labor might make connected with higher hazard for maternal What's more perinatal mortal sin. [2-3]. Neonatal respiratory horribleness [NRM] is a standout amongst the referred to difficulties from claiming elective cs directed the middle of 37-38+6 weeks about pregnancy. It ranges starting with transient tachypnoea [TTN] about infant with respiratory disappointment. For 1964, the Acquaintanceship about NRM with term elective cs might have been highlighted for the primary time. From that point forward vast number of investigations were led should build their connection. A as of late accomplice contemplate further reinforced this companionship. [4]. Elective expression conveyance by cs will be answerable for half of conceivably avoidable reason for neonatal respiratory trouble [NRD]. 10 TTN is those A large portion regular reason for NRM took after by RDS. 5 iatrogenic RDS [after elective CS] persists as a reason for neonatal horribleness What's more mortal sin. [6-7]. When babies need aid conveyed close to alternately during term particularly Eventually Tom's perusing elective cesarean conveyance in front of the onset of spontaneous vaginal delivery, Typically they are denied of fundamental hormonal transforms bringing about those improvemen respiratory difficulties extraordinarily neonatal trouble syndrome. [8]. Separated from the mode of delivery, gestational period at those the long run about conveyance likewise influences hazard from claiming NRM. Amount about studies9,10 have demonstrated that the hazard from claiming NRM will be conversely proportional of the gestational period during those the long run of elective cs. It may be 73. 8/1000 during 37+6 weeks, 42. 3/1000 at 38+6 weeks What's more 17. 6/1000 In 39+6 weeks. 11 this pattern will be especially maintained for RDS the place the danger abatements from around 39/1000 for period the middle of 37+0 with 37+6 on 8/1000 to time the middle of 39+0 to 39+6 weeks, same time TTN abatements from 7/1000at 37 on 4/1000 >39 weeks. [12]. The improvement of NRD prompts chain from claiming events, including confirmation should neonatal seriousness [NICU], influencing mother-child bonding, cosset from claiming consideration and difficulties starting with obtrusive procedures, including simulated ventilation. 13 it is Additionally connected with those advancement about asthma in adolescence. [14]. In place should decline this complication, rules issued Eventually Tom's perusing those american chamber of Obstetricians Also Gynaecologists [ACOG],15 the imperial school of Obstetricians What's more Gynaecologists [RCOG] Furthermore decent suggest that EL-LSCS ought to a chance to be arranged In 39+0 weeks.

If EL-LSCS is regarded vital former to 39 weeks, prophylactic dexamethasone in any event 48 hours former of the date of cs will decline those hazard about NRM. 16 However, those confirmation for such suggestion will be flawed. Investigations bring indicated no extra profits of administering corticosteroids with moms following 34 weeks. [17]. They have demonstrated this Similarly as corticosteroids assume a paramount part in last development about lungs Toward expanding amount Also work of sodium [Na]+ channels Also expanding preparation about surfactant.

Same time there is solid proof that An absolute antenatal prophylactic course for corticosteroids in preterm work in the recent past 34 weeks gestation will be viable Previously, neonatal death, RDS, cerebroventricular hemorrhage, necrotizin-genterocolitis, and confirmation should An neonatal emergency unit and respiratory backing. [18] those inquiry is if these reductions could really stretch out to 37 and 38 weeks.

Those ASTEC trial need turned out that frequency of respiratory trouble at 37-39 weeks from claiming gestation would lessened to A large portion with the utilization of antenatal steroids, TTN declines starting with 4% should 2. 1% and RDS from 1% on 0. 2%. This trial also indicated that there may be 6-fold decline in the rate about nicu confirmation for NRD after giving antenatal corticosteroids. [19]. The diminished occurrence from claiming TTN to steroid bunch will be In view of typical physiology Throughout work. Throughout Labor there is An Ascent over corticosteroids' level which Urges those statement of the epithelial channel gene and permits the lung to switch from liquid emission with liquid absorption. ELSCS bypasses this mechanism, thereby predisposing of the expanded danger of NRM. [20]. There need aid a amount from claiming studies16,21 that have turned out that single course for antenatal corticosteroids will be not connected with maternal/foetal spoiling Also need no unfriendly impacts on neurological alternately cognitive framework of the neonate.

Those proof to organization of corticosteroids following 34 weeks will be still questionable since there may be an absence from claiming appropriately led trials from claiming antenatal corticosteroids clinched alongside moms conveyed Toward elective cesarean conveyance during this gestational period.

The current examine might have been arranged with analyze frequency What's more example from claiming NRM On neonates conveyed Eventually Tom's perusing arranged cs the middle of 37-38+6 weeks then afterward prophylactic dexamethasone with moms with the individuals who conveyed without prophylactic dexamethasone.

**2.Subjects and Methods**

Those review accomplice ponder might have been directed in the nicu of Benha kids healing center Throughout those period off from november 2017. The protocol of the study might have been endorsed Toward the research council of the clinic. It incorporated 100 neonates who were conveyed Eventually Tom's perusing EL-LSCS between 37 with 38+6 weeks for pregnancy then afterward uncomplicated pregnancy Also admitted with nicu because of respiratory issues that happens ordinarily following elective cesarean conveyance uncommonly TTN. Neonates for history for antenatal diabetes mellitus [DM] [gestational alternately unmistakable diabetes], history from claiming break of membranes ,history from claiming pill admission complex alternately At whatever unending restorative sickness ,infections including tuberculosis, intrinsic bizarre embryo Furthermore intrauterine Growth confinement [IUGR] fetuses were excluded.

Patients were partitioned as stated by antenatal maternal steroid organization What's more its measurement protocol under 2 laid open aggregations who’s moms accepted prophylactic antenatal dexamethasone Possibly single dosage [group 2] alternately repeater doses [group 3], Furthermore non-exposed gathering [group 1] who’s moms didn't accept dexamethasone. Neonatal medicinal records were reviewed with full antenatal history bringing starting with their moms and the greater part obliged data might have been recorded over a organized Performa whose grade result measure might have been with see those amount for babies with NRM done each gathering Also auxiliary Conclusion measure might have been should look at Contrast done nursery confirmation and downright healing facility remain in distinctive Assemblies. TTN/RDS were diagnosed by neonatologist on the groundwork of clinical features Also radiological discoveries. Information might have been analysed utilizing SPSS 19. Benchmark aspects were thought about utilizing methods Also standard deviations [SD] Furthermore proportions about both bunches Toward student's t test and Chi-square separately. Variables connected with TTN were investigated through student's t-test, fisher accurate Furthermore chi-square tests whichever might have been proper.

**3.Results**

The 100 neonates included in this study 43 of them are group 1 [non exposed group] ,49 group 2 [with single steroid course] and 8 group 3 [with multiple steroid courses] .The three groups were comparable regarding the baseline characteristics There were no significant differences between studied groups regarding baseline characteristics [ maternal age, parity , gestational age, indications for CS , type of anesthesia, neonatal gender& birth weight ]. Table [1]

Most common indication of C-section was abdominal scar due to previous C-section. Asregarding type of anesthesia during CS it was spinal in 99 and general in 1 of the whole cases of our studied groups.

**Table [1]:** Baseline characteristics of the studied groups.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Group 1**  **[no steroid]**  **No= 43 [%]** | **Group 2**  **[single course]**  **No= 49 [%]** | **Group 3**  **[2 courses]**  **No=8 [%]** | **Test** | **P value** |
| **Age [years]**  **[mean±SD]**  **Range** | 28.4±4.5  [20-37] | 26.18±4.08  [20-35] | 26.81±2.92  [24-33] | F test=  2.806 | 0.083 |
| **parity**  **primi-gravida**  **multi-gravida** | 6 [14]  37 [86] | 4 [8.2]  45 [91.8] | 0 [0]  8 [100] | 1.806\* | 0.403 |
| **Gestational age [weeks]**  **[mean±SD]**  **Range** | 38.1±5d  [37-38+6] | 37.8±4d  [37-38+6] | 38.4±6d  [37-38+6] | F test=  2.214 | 0.141 |
| **Indication of CS**  **1ry infertility**  **ECS [CPD]**  **ECS [old age]**  **CS scar** | 1 [2.3%]  2 [4.7%]  3 [7%]  37 [86%] | 0 [0%]  4 [8.2%]  0 [0%]  45 [91.8%] | 0 [0%]  0 [0%]  0 [0%]  8 [100%] | 6.412 | 0.372 |
| **Type of anaesthesia**  **General**  **spinal** | 0 [0%]  43 [100%] | 1 [2%]  48 [98%] | 0 [0%]  8 [100%] | 1.246 | 0.591 |
| **Gender:**  **female**  **male** | 10 [23.3%]  33 [76.7%] | 15 [30.4%] 34 [69.6%] | 2 [25%]  6 [75%] | 0.647 | 0.572 |
| **Post- delivery weight:**  **[mean±SD]**  **Range** | 3283.2±337.2  [2700-4100] | 3210.1±356.4  [2700-4200] | 3188.2±317.4  [2800-3700] | F Test=  0.620 | 0.410 |

The number of neonates being admitted to NICU with respiratory morbidities after elective CS was slightly lower in group1 [no corticosteroid] when compared to group 2& 3[corticosteroid exposed groups] [43% vs. 57% respectively from the total number of the studied 100 neonates].Antenatal administration of dexamethasone was not associated with reduction in the risk of neonatal admission to PCBU.Table [2].

All neonates were admitted by RD of different grades due to transient tachypnea of newborn . No cases of RDS was recorded between studied cases. Therefore no statistically significant difference between the studied groups with regard to cause of NICU admission [P value o.570] and the risk of neonatal RDS after elective CS at term. Table [2].

There was no significant difference between different groups regarding rate of need for mechanical ventilation [4 [9.8%]in group 1, 4 [8.2%]in group 2 &0 [0%]in group 3][P value 0.701]. One neonate of all cases died because of pneumothorax as a complication during application of CVP line, 3 complicated by sepsis & rest of all babies were discharged home. In all groups, majority of babies remained in NICU for less than 48 hours .

**Table [2]:** Comparison between the studied groups according to usage of antenatal steroids regarding neonatal outcome.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Group 1  [no steroid]  No= 43 | Group 2  [single course]  No= 49 | Group 3  [2 courses]  No=8 | Fisher Exact test | P value |
| **Causes of NICU admission**  **malignant TTN**  **TTN** | 4 [9.3%]  39 [90.7%] | 4 [8.2%]  45 [91.8%] | 0 [0%]  8 [100%] | 0.797 | 0.570 |
| **V support**  **No**  **yes** | 39 [90.2%]  4 [9.8%] | 45 [91.8%]  4 [8.2%] | 8 [100%]  0 [0%] | 2.246 | 0.701 |
| **Hospital stay**  **<6h**  **6-48h**  **>48h** | 15 [34.8%]  14 [32.5%]  14 [32.5%] | 16 [32.6%]  14 [28.5%]  19 [38.7%] | 5 [62.5%]  2 [25%]  1 [12.5%] | 23.254 | 0.401 |
| **Fetal outcome:**  **Discharge**  **Sepsis**  **died** | 43 [100%]  0 [0%]  0 [0%] | 45 [91.8%]  3 [6.1%]  1 [2.1%] | 8 [100%]  0 [0%]  0 [0%] | 4.321 | 0.362 |

There was no statistically significant difference between studied groups with regard to final outcome, requirement for mechanical ventilation and length of hospital stay . table [2].

Therefore no correlation between antenatal corticosteroid administration before elective cesarean delivery at or near term and neonatal respiratory outcome [R=0.087, P value=0.388]. table [3].

**Table [3]:** correlation between antenatal steroid use and fetal outcome

|  |  |  |
| --- | --- | --- |
| Parameter | R | P value |
| Steroid use | 0.087 | 0.388 |

**4.Discussion**

Those expand clinched alongside elective cs rates in the previous decades need highlighted those have to decrease respiratory difficulties connected with this helter skelter rate about cs. Previously, creating nations assets need aid rare Furthermore it may be was troublesome on gatherings give unreasonable medication as neonatal forethought. This prompts monetary trouble on the state and additionally those individual in the type about unreasonable neonatal care, parental anxiety, division for infant from those mothball Furthermore expanded danger from claiming neonatal horribleness optional will nicu confirmation.

In general frequency of NRD may be evaluated at 2. 8% and the fundamental danger figures would gestational agdistis at those period for conveyance Furthermore mode of conveyance. [2]. There is 4-fold increment On respiratory trouble and 5-fold expanded danger from claiming not kidding respiratory horribleness for EL-LSCS contrasted with vaginal conveyance. 4 In spite of during term, hazard from claiming NRM is low [2-fold] However not negligible, subsequently it will be vital will detract best could reasonably be expected movement to diminishing this muddling.

In the nonattendance for anxiety from claiming Labor there may be absence of catecholamines Furthermore corticosteroids discharge which is obligatorily for last development about fetal lungs. Essentially there would two instruments needed to guarantee neonatal lung development at term: disposal of over the top liquid starting with alveoli; and build to pulmonary blood perfusion.

Late confirmation demonstrates that separated starting with accepted mechanical idea of vaginal squeeze, sub-atomic system predominantly lung, Na+ channels Push alveolar liquid waste Also these channels might be underactive to fetuses not presented of the transform of work. 8 the outflow for these channels may be controlled Eventually Tom's perusing a few variables for example, such that endogenous catecholamines, oxygen, thyroid hormones and, finally, Eventually Tom's perusing glucocorticoids. Around these, the the vast majority imperative variable to incitement from claiming na reabsorption in the fetal lungs Also surfactant generation for propelled gestational agdistis need aid catecholamines What's more glucocorticoids. Glucocorticoids expansion the amount What's more work from claiming these Na+ channels and additionally responsiveness should catecholamines Furthermore thyroid hormones, giving justification for their exogenous organization On instances for EL-LSCS.

In the present study, those impacts for administering corticosteroids to moms who were wanted should bring elective c-segment then afterward 37 weeks gestation, were assessed As far as neonatal respiratory horribleness requiring oxygen supplementation and the prerequisite for confirmation on nicu.

Neonatal respiratory horribleness will be expanded by Different danger figures including sexual orientation of the newborn, conception weight, kind for anesthesia provided for on mothball In those run through of C-section, maternal therapeutic states similar to premature break for membranes [PROM], maternal fever, What's more history about maternal solution utilization. 22,23 Anyhow in this study, constantly on the individuals babies who were conceived with moms with history from claiming PROM Furthermore other medicinal issue were excluded. Every last one of C-sections but one c. Encountered with urban decay because of deindustrialization, innovation developed, government lodgin were performed under spinal anesthesia. There might have been no statistically critical distinction the middle of those different gatherings to our investigation as a long way Concerning illustration conception weight Furthermore sexual orientation of the neonates were concerned.

Our comes about demonstrated no noteworthy association about dexamethasone with NRM i. E uncovered no useful impact from claiming antenatal organization from claiming steroids to parturients booked for elective cesarean conveyance the middle of 37 What's more 39 weeks for gestation viewing diminishment about respiratory horribleness , nicu confirmation alternately need for mechanical ventilation. Every last bit neonates were admitted should nicu with RD because of TTN and the number of babies admitted On nursery for respiratory trouble might have been higher clinched alongside dexamethasone presented bunches [2+ 3] over non laid open Group [1] [57% vs. 43% separately from those downright number of the concentrated on 100 neonates].

Our outcomes advancing in understanding with An investigation conveyed crazy Eventually Tom's perusing Hutchson, who indicated that antenatal corticosteroids bring no part clinched alongside diminishing the neonatal respiratory horribleness and also nicu confirmation. 20 he need discovered that the downright amount for babies admitted in the betamethasone one assembly might have been 26/467 Furthermore in the control one assembly 32/475, for no statistically huge Contrast in the in general rate of admissions will PCBU. [24]. An investigation from claiming 362 neonates destined during 34 weeks of gestation or additional discovered that regardless of adolescent fetal lung indices were detected, organization from claiming antenatal corticosteroids didn't diminish respiratory horribleness On neonates conceived at 34 weeks of gestation or additional. [17]. A late trial distributed comparable comes about indicating that finishes antenatal medication for corticosteroids at 34-36 weeks about pregnancy doesn't lessen those occurrence from claiming respiratory issue clinched alongside infant babies. [25]. In spite of the fact that the past 3 investigations kept tabs ahead an alternate gestational agdistis from that of the available study, at present an incredible similitude happens the middle of both investigations and the system from claiming steroid movement after 34 weeks Possibly late preterm [34-36+6] alternately promptly term [37-38+6] those same.

Unexpectedly should our study; those antenatal Steroids to expression elective cesarean area study, Toward Stutchfield et al, analyzed the utilization about antenatal corticosteroids provided for with ladies who arranged will convey toward 37 weeks about gestation alternately more stupendous Toward elective cesarean. In spite of the investigators found a huge Contrast in the rate of RDS between those medication Furthermore control gatherings [1. 1 Also 0. 2%, respectively], they needed comparable numbers of admissions will neonatal emergency unit to both gatherings [26 Furthermore 32, respectively], demonstrating that in spite of the fact that antenatal corticosteroids might have diminished those occurrence of respiratory morbidity, different neonatal morbidities still required emergency unit.

Likewise those information introduced by Stutchfield et al show that delaying non-urgent elective cesarean segment until 39 weeks is a great deal additional compelling Previously, avoiding neonatal confirmation over giving steroids. To those 15% or something like that of such ladies who will try under work the middle of 37 What's more 39 weeks, those disservice from claiming Hosting their cesarean “out from claiming hours” is probable on a chance to be less that for Hosting their infant admitted will exceptional consideration. The vast majority will main make On right on time labour, avoiding those difficulties from claiming an intense intrapartum crisis. [19]. Betamethasone provided for in the recent past elective cesarean segment during haul diminishes respiratory trouble and confirmation will an extraordinary consideration baby unit. [26] those profit falls for expanding gestation, supporting the suggestion should delay elective cesarean segment until the 39th week. By those profits of antenatal steroids persimmon tree till 39 weeks. [27]. Numerous other investigations would also in understanding for a Cochrane precise survey 2009 which will be as opposed with our present examine Also expressed that there might have been a decrease to nicu confirmation to babies whose moms gained antenatal corticosteroids. 26 However, those same Audit didn't find any statistically critical Contrast as far Concerning illustration those respiratory horribleness might have been concerned.

Other late investigations [28], [29], [30], [31], [32] for those The majority late upgrade for Cochrane precise Reviews [33] finished up that steroid disguise essentially diminished those hazard from claiming respiratory horribleness Also confirmation with nicu for babies conveyed Eventually Tom's perusing elective cesarean area the middle of 37-39 weeks. However, the writers depicted the personal satisfaction from claiming evidence, might have been low Furthermore exact low to those results about RDS, TTN and confirmation to nicu to respiratory morbidity, demonstrating that the genuine impact Might conceivably be significantly unique in relation to those discovered evaluate about impact. Likewise those unblinded outline of the studies [as no placebo might have been utilized within 3 of the 4 trials ] elevating those hazard about inclination. Absence of blinding to randomized investigations could possibly predispose will a few distortion of the intercession impacts for a few conclusions. [1]. At last Our consider proceeds to backing those idea that gestational development itself need the strongest relationship with an absence for neonatal horribleness. Thus delaying conveyance until 39 weeks, unless necessary, might appear a more prudent choice over providing for steroids whose in length expression safety, indeed as a absolute course, remains flawed.

**5.References**

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