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LETTER TO EDITOR (VIEWERS CHOICE)

ANTENATAL BETAMETHASONE DOSING SCHEDULE: AN ONGOING CONUNDRUM!

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Antenatal administration of betamethasone is a key perinatal intervention. However, the recommended dosing regimen is often accelerated to provide adequate coverage with steroids, especially in cases of emergencies and referrals. The ideal regimen for antenatal administration of betamethasone is yet to be established and research is warranted to elucidate benefits and harms of the accelerated dosing often used in clinical practice. We discuss the evidences for this practice in this letter.

Dear Editor,

Liggins described the benefits of antenatal corticosteroids on the maturation of preterm lungs in a landmark study in 1972. A recent meta-analysis which included 11925 infants showed a significant reduction in perinatal and neonatal mortality, respiratory distress syndrome, and intraventricular haemorrhage.[1] The current recommended dosing regimen of two doses of 12 mg Betamethasone given 24 hourly was made by National Institute of Health in 1994, though the arbitrary basis for selection of the regimen was acknowledged.

A recent study by Bulut et al demonstrated significant benefit of 12 hourly dosing interval in neonates born between 32+0/7 and 33+6/7 weeks gestation in the form of higher Apgar scores, reduced length of neonatal intensive care stay, and reduced respiratory distress syndrome and surfactant instillation.[2] In the neonates born between 28+0/7 and 29+6/7 weeks who received 12 hourly regimen, there was shorter duration of mechanical ventilation and hospital stay, which is probably due to the decreased severity of neonatal morbidities. The potential benefit with the 12 hourly regime for respiratory distress syndrome has also been described by Kashanian et al in their randomised control trial of 201 women delivering between 26-34 weeks.[3] A non-inferiority trial of 260 fetuses between 23–34 weeks showed that the shorter dosing interval was equivalent to the standard dosing interval for prevention of respiratory distress syndrome.[4]

A total dose of 24 mg of Betamethasone was shown to attain fetal concentrations similar to cortisol levels during physiological stress. This achieves approximately 75% steroid receptor occupancy in fetal target tissues providing near maximal induction of the steroid response. The combination of betamethasone acetate (long-acting) and betamethasone phosphate (short-acting) is seldom available in resource-limited settings where mothers are often emergently referred from peripheral health facilities to higher centers for care. As a result, 12 hourly dosing regimen with short-acting betamethasone phosphate is commonly practiced to achieve maximum steroid coverage, albeit without robust scientific evidence.

Recommendations for shorter dosing intervals should however be approached with caution considering the increased incidence of necrotizing enterocolitis and mortality noted with the shorter dosing regimen in two published randomized trials.[3,4]

In light of the above, large multicentre clinical trials are the need of hour to provide a consensus on dosing intervals of betamethasone, which continues to remain one of the key perinatal interventions to improve preterm neonatal outcomes.

Compliance with Ethical Standards

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