

Maternal corticosteroids for fetal congenital pulmonary airway malformation: a systematic review

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Objective

The objective of our study was to evaluate the published data on the effects of antenatal corticosteroids on fetal high-risk CPAM by systematic review of the literature.

Outcomes

The primary outcome was perinatal death, defined as stillbirths plus neonatal deaths. The secondary outcomes included development of hydrops (for cases without hydrops), improvement in CVR, decrease of size of the CPAM

Methods

OVID/MEDLINE, PubMed, Cinahl, Scopus, Cochrane Library were electronically searched from their inception to February 2025. Selection criteria included studies which evaluated the effect of maternal corticosteroids, versus no such therapy, on perinatal outcomes in fetuses with high-risk CPAM. PROSPERO N°CRD420251017263

Results

Reviewed of the literature revealed 270 potential studies, of which 45 were formally assessed for eligibility. Of these 45, none were RCTs, and 44/45 had only treated cases, without separate data for controls. Only one retrospective study had patients with CPAM with CVR 11.6 either treated with maternal corticosteroids or not. Neither the two cases treated with steroids nor the one control had data on perinatal mortality. There were no studies with high-risk CPAM and hydrops, or CPAM with CVR 11.6 and hydrops, which had controls

Conclusions:

Despite recommendation from SMFM as well as some studies about routine treatment of high-risk CPAM with CVR ≥1.6 or with hydrops with maternal corticosteroids, there is limited evidence of the effectiveness of this therapy compared to no such therapy. Larger studies of maternal steroid use for high-risk CPAM compared with non-treated controls, especially in cases without hydrops, are needed.

Auth or, year (cou ntry)	Treat ment	To ta l	GA at diagn osis (w)	CVR at first visit	Steroi d dose	Ga at treat ment (w)	Length of treatme nt (w)
Meh l, 2022 USA	Steroi ds	2	1: 26 2: 26	1: 1.6 2: 1.6	12 mg IM 2 doses 24h apart	1: 30 2: 27	Single course
“	No steroi ds	1	38	3: 1.9	NS	NS	NS

Aut hor, year (cou ntry)	Treat ment	Redu ction in size (over all)	Red ucti on in CVR	Deve lope d hydr ops	CVR at last visit (w)	Still birt h	Neon atal mort ality	Perin atal mort ality
Meh l, 202 2 (US A)	Stero ids	2/2	2/2	0/2	1: 1.0 (32) 2: 1.4 (36)	0/2	0/2	0/2
“	No steroi ds	NA*	NA*	0/2	NA*	0/1	0/1	0/1