

MP1-6

Treatment of Pulmonary Arterial Hypertension Using Sildenafil in Neonates with Bronchopulmonary Dysplasia

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Introduction: Sildenafil citrate, a phosphodiesterase-5-inhibitor, is a controversial treatment option for pulmonary arterial hypertension (PHT), a significant complication of bronchopulmonary dysplasia (BPD). There is scarce data in premature infants.

Objectives: Evaluate the use of sildenafil citrate in infants with BPD complicated by PHT.

Methods: Retrospective cohort study in a level 3 NICU (CHU mère-enfant Sainte Justine). All medical records of premature infants with PHT secondary to BPD treated with sildenafil citrate between January 2009 and May 2013 were reviewed. Primary outcomes were: 1-clinical response with 20% decrease in respiratory support score or FiO₂ requirements; 2-echocardiographic response with decrease in tricuspid regurgitation gradient (at least 20%) or septal flattening (at least 1 degree).

Results: Twenty-three infants (61% male) with a median [IQR] gestational age of 26 wks [23-30] and birth weight of 710 g [480-1170] were included. Antenatal data is marked by presence of chorioamnionitis (17%), oligohydramnios (22%), intrauterine growth retardation (39%) and premature rupture of membranes (39%). Neonatal course included: confirmed sepsis (48%), grade 2 or more necrotizing enterocolitis (32%), stage 3 retinopathy of prematurity (ROP) (56%) and patent ductus arteriosus (78%).

Pharmacologic data, benefits and side effects are represented in the table.

Pharmacologic data (Median [IQR])

Corrected age (weeks) at introduction of treatment	40 [28-54]
Dose (mg/kg/day)	4,4 [1-8]
Length (days) of sildenafil treatment	68 [2-857]
Time (days) to reach maximum dose	9 [2-39]

Benefits (n (%)) or median [IQR])

Clinical response	8 (35)
Clinical response in first 48 hours	6 (26)
Clinical response in first 7 days	2 (9)
Echocardiographic response	16 (73)
Time (days) to echocardiographic response	19 [2-312]

Side effects (n (%))

Significant hypotension related to sildenafil	10 (44)
Other side effects (priapism and progression of ROP)	0 (0)

Other data (n (%))

Survival	15 (65)
Death during treatment	5 (23)

Conclusions: Sildenafil citrate treatment for patients with PHT associated with BPD improves echocardiographic measurements in, more than 2/3 (73%) of patients despite only 1/3 (35%) of clinical response. Significant side effects are present (44% had hypotension). Further prospective studies are required to better assess efficacy of this treatment. .