ABSTRACT FROM CURRENT LITERATURE

Intermediate and long-term followup of percutaneous device closure of fossa ovalis atrial septal defect by the amplatzer septal occluder in a cohort of 529 patients

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Objectives: The aim of present study is to analyze the intermediate and long-term follow up results of percutaneous closure of fossa ovalis atrial septal defect (ASD) with Amplatzer septal occluder (ASO) in a large cohort of patients including children and adults.

Methods: Between May 1998 and July 2008, 529 patients (age group 2-77 years, median 28 years) underwent successful device closure with an ASO at single tertiary referral cardiac center in India.. This was out of an attempted 543 cases. The procedure was carried out in catheterization laboratory under transesophageal echocardiographic and fluoroscopy guidance. The mean size of ASD was 20 mm (7-40 mm) while size of septal occluder was 10-40 mm (mean 24 mm). Two devices were deployed in four patients. Three patients developed transitory pulmonary edema in immediate postprocedure period requiring ICU care for 48 hrs. All patients were advised for Aspirin (3-5 mg/kg, maximum 150 mg) once daily for 6 months. In patients with device 30 mm or larger, Clopidogril (75 mg once daily) was given for 3 months in addition to Aspirin. Clinical evaluation, echocardiogram were done on 3 months, 6 months and then at 1, 3, 5, 7 and 10 years of follow up. Transesophageal echocardiography (TEE) was performed in case of any doubt on clinical evaluation or on transthoracic echocardiography (n=10).

Results : Follow up data is available for 496 patients (93.7%). Follow up period is from 12 months to 120 months (median 56 months). On follow up, device was in position in all patients, no residual shunt and no evidence of thrombosis. Interventricular septal motion normalized on day of procedure in 89% patients, in 6% over 3 months while flat septal motion persisted in 5% (n=25, all in age group > 40 years) of cases, though right ventricular dilatation persisted in 10% (n=50, age more than 40 years) of patients. Symptom-free survival was 96.7 % (480/496) in patients who came for followup. Only one 68 year old patient with preexistent tricuspid regurgitation developed congestive heart failure, and one patient (58 years old) had a history of hemiparesis after 1 year of device on telephonic interview. Ten patients were in atrial fibrillation (AF) before the procedure and remained in AF on follow up.

Conclusions : Our study showed that percutaneous closure of fossa ovalis ASD is a safe and effective procedure on intermediate and long-term follow up in both the children as well as adults. both. Technical factors during the procedure and proper follow up are important. Our single centre intermediate and long term experience in a large number of patients support the use of device closure as an alternative to surgery.

Keywords: ASD device closure, fossa ovalis ASD, long-term follow up

Reference values for pulse oximetry recordings in healthy term neonates during their first 5 days of life

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Objective: To determine reference values for pulse oximeter saturation (SpO_2) variables and desaturation event indices in healthy term neonates during their first 5 days of life, and to compare two definitions for the identification of desaturation events.

Design: Observational study (case series).

Setting: Maternity ward, Department of Neonatology, University Children's Hospital, Tuebingen, Germany.

Patients: 209 healthy term neonates (50% boys), median (minimum–maximum) age 2 (0–5) days.

Main outcome measures SpO_2 variables (eg, median SpO_2) and desaturation events obtained by motion-resistant pulse oximetry (VitaGuard 310;

Getemed, incorporating Masimo SET). Desaturation events were identified based either on a good signal quality (SIQ) provided by the device or on the combination of a good SIQ and an undisturbed pulse waveform (SIQ+PW). Desaturation event indices were calculated as desaturation events divided by hour of artefact-free recording time.

Results: The mean (SD) of the obtained median SpO_2 was 97.3% (1.4%). There were 36 (17%) subjects with desaturation events to <80% SpO_2 based on SIQ, and 26 (12%) based on SIQ+PW. Median desaturation event rate to <80% SpO_2/h (75th centile; 95th centile; maximum) was 0 (0; 0.6; 2.3) based on SIQ, and 0 (0; 0.4; 1.7) based on SIQ+PW.

Conclusions: Desaturation events to <80% SpO_2 were rare in our sample of healthy term neonates during their first 5 days of life. Analysis of SIQ alone could be a quick and simple alternative to traditional analysis of PW. The presented reference values may be used for clinical decision making.

Phenotype and Radiological Correlation in Patients with Growth Hormone Deficiency

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Objective : To confirm that MRI findings like hypoplastic anterior pituitary, thin or interrupted pituitary stalk, and ectopic posterior pituitary (EPP) in patients with growth hormone deficiency are a good indicator of the severity of hypopituitarism.

Methods : MR images were obtained for 44 patients (IGHD: CPHD; 30:14) and analyzed to define one or more of the following triad of abnormalities: small/absent anterior pituitary, thin or interrupted pituitary stalk, and EPP, as well as for any other associated anomalies. The findings were correlated with the clinical and biochemical presentation.

Results : Pituitary abnormalities were common in both groups (53% with IGHD, 79% with CPHD). Breech delivery, neonatal hypoglycemia, jaundice, micropenis, birth asphyxia occurred more commonly in CPHD compared to IGHD. In patients whose peak growth hormone (GH) level was less than 3 ng/ml (n: 37), 68% had the MR triad; while none of them with GH > 3 ng/ml had pituitary abnormality on MRI.

Conclusions: The presence of structural anomalies in the hypothalamic pituitary area in patients with GHD suggests severity of hypopituitarism and MRI of hypothalamic pituitary area may aid in diagnosis of patients with suspected GHD.

Vancomycin prescription in neonates and young infants: toward a simplified dosage

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Background: There is no consensus on vancomycin dosing in newborns and young infants.

Objective: The first objective was to assess the efficiency of a simplified dosing regimen with a cohort study. The secondary objective was to examine pharmacokinetic data to determine how this simplified dosing could be improved.

Methods: All neonates admitted to our intensive care unit and treated with vancomycin were included in the pharmacokinetic study (PK group, 83 treatments, 156 measurements). The vancomycin dosing regimen consisted of a loading dose of 7 mg/kg, followed by a constant continuous dose of 30 mg/kg/day. The target serum vancomycin concentration ranged from 10 mg/l to 30 mg/l. Data from patients whose medications followed the scheduled dosing without modifications or prescription errors (actual dosing group: 62 treatments, 108 measurements) were analysed separately. A population pharmacokinetic analysis was performed (PK group) to simulate several vancomycin dosings.

Results: Prescription errors were found in 10 of 83 treatments (12%). In the actual dosing group, 89.2% of vancomycin measurements were within the target range. Serum creatinine remained stable throughout treatment. Vancomycin concentrations varied widely. The modified regimen for a target vancomycin concentration of 25 mg/l consisted of a bolus of 20 mg/kg followed by continuous infusion of 30 mg/kg.

Conclusion: Our pharmacokinetic data and bedside results suggest that a simplified schedule of vancomycin can achieve the targeted drug concentrations in most patients while avoiding secondary renal toxicity. The proposed new dosing scheme should be validated in a drug survey, but due to pharmacokinetic variability, still requires therapeutic drug monitoring.

Use of beclomethasone dipropionate as rescue treatment for children with mild persistent asthma: a randomised, double-blind, placebo-controlled trial

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Background: Daily inhaled corticosteroids are an effective treatment for mild persistent asthma, but some children have exacerbations even with good day-to-day control, and many discontinue treatment after becoming asymptomatic. We assessed the effectiveness of an inhaled corticosteroid (beclomethasone dipropionate) used as rescue treatment.

Methods: In this 44-week, randomised, double-blind, placebo-controlled trial we enrolled children and adolescents with mild persistent asthma aged 5-18 years from five clinical centres in the USA. A computer-generated randomisation sequence, stratified by clinical centre and age group, was used to randomly assign participants to one of four treatment groups: twice daily beclomethasone with beclomethasone plus albuterol as rescue (combined group); twice daily beclomethasone with placebo plus albuterol as rescue (daily beclomethasone group); twice daily placebo with beclomethasone plus albuterol as rescue (rescue beclomethasone group); and twice daily placebo with placebo plus albuterol as rescue (placebo group). Twice daily beclomethasone treatment was one puff of beclomethasone (40 μg per puff) or placebo given in the morning and evening. Rescue beclomethasone treatment was two puffs of beclomethasone or placebo for each two puffs of albuterol (180 μg) needed for symptom relief. The primary outcome was time to first exacerbation that required oral corticosteroids. A secondary outcome measured linear growth. Analysis was by intention to treat.

Results: 843 children and adolescents were enrolled into this trial, of whom 288 were assigned to one of four treatment groups; combined (n=71), daily beclomethasone (n=72), rescue beclomethasone (n=71), and placebo (n=74)-555 individuals were excluded during the run-in, according to predefined criteria. Compared with the placebo group (49%, 95% CI 37-61), the frequency of exacerbations was lower in the daily (28%, 18-40, p=0·03), combined (31%, 21-43, p=0·07), and rescue (35%, 24-47, p=0·07) groups. Frequency of treatment failure was 23% (95% CI 14-43) in the placebo group, compared with 5·6% (1·6-14) in the combined (p=0·012), 2·8% (0-10) in the daily (p=0·009), and 8·5% (2-15) in the rescue (p=0·024) groups. Compared with the placebo group, linear growth was 1·1 cm (SD 0·3) less in the combined and daily arms (p<0·0001), but not the rescue group (p=0·26). Only two individuals had severe adverse events; one in the daily beclomethasone group had viral meningitis and one in the combined group had bronchitis.

Interpretation: Children with mild persistent asthma should not be treated with rescue albuterol alone and the most effective treatment to prevent exacerbations is daily inhaled corticosteroids. Inhaled corticosteroids as rescue medication with albuterol might be an effective step-down strategy for children with well controlled, mild asthma because it is more effective at reducing exacerbations than is use of rescue albuterol alone. Use of daily inhaled corticosteroid treatment and related side-effects such as growth impairment can therefore be avoided.