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OBJECTIVE: The objective of this study was to explore the influence of implanted mesenchymal stem cells (MSCs) on cardiac function, structure, and electrophysiology in rabbits with dilated cardiomyopathy (DCM).
METHODS: Thirty-eight rabbits were randomly assigned to 3 groups: (1) normal rabbits (n = 12); (2) rabbits with DCM cell implantation (n = 13); or (3) DCM control rabbits (n = 13). Adriamycin was applied to create the rabbit DCM model. Rabbits for cell transplantation received an intramyocardial injection of MSCs. Four weeks later, heart function morphology and electrophysiology changes were observed. The expression of cardiac Troponin T and connexin 43 was investigated through immunohistochemistry.
RESULTS: Compared with normal rabbits, the cardiac function of DCM rabbits was impaired, but this impaired function was improved by MSC implantation. The value for monophasic action potential amplitude and the maximum velocity in ¡°0¡±phase decreased significantly in DCM rabbits, whereas the value for 50% monophasic action potential durations (MAPD) and 90% MAPD were increased significantly. The effective refractory period increased also. The comparison of both DCM groups showed that the prolongation of MAPD was shorter in the cell implantation group than in the DCM control group, and no after-depolarization was observed, whereas early after-depolarization was recorded in 2 rabbits in the DCM control group. Histology analysis showed that the structural abnormalities in the cell implantation group were less than those in the DCM control group, and the implanted MSCs could express cardiac Troponin T and connexin 43.
CONCLUSIONS: Implanted MSCs can improve heart function, reduce the structural abnormalities, and possibly inhibit the progression of electrophysiologic derangement.

Pulmonology

DIAGNOSIS OF AIRWAY MALACIA VIA VIRTUAL BRONCHOSCOPY

Submitted by Nemat Bilan

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INTRODUCTION: The term "malacia" refers to softness; in medical terminology, it refers to weakness of bone or cartilage. Laryngomalacia is the most common congenital abnormality of the larynx, and the patient may experience recurrent aspiration. Tracheomalacia refers to tracheal weakness and usually causes airway collapse as a result of cartilage defect. Bronchomalacia describes the weakness and collapsibility of 1 or both main bronchi. All of these diseases can be diagnosed by bronchoscopy, but this method is invasive and may interfere with the diagnosis. Furthermore, it is intolerable in young individuals who are severely ill and in patients with coagulopathy.
OBJECTIVE: This study was conducted to examine the role of virtual bronchoscopy in the diagnosis of laryngotracheobronchomalacia.
METHODS: In a periexperimental study during 3 years (November 2003 through October 2006), 35 patients who had clinical signs and symptoms of airway malacia were surveyed via virtual bronchoscopy.
RESULTS: The percentage of boys and girls was 65.7% and 34.3%, respectively, and the mean age was 3.7 ± 1.6 months. The result of virtual bronchoscopy for laryngomalacia, bronchomalacia, tracheomalacia, laryngotracheomalacia and laryngobronchomalacia was 42.8%, 25.7%, 20%, 8.5%, and 2.9%, respectively.
CONCLUSIONS: Virtual bronchoscopy, because of its noninvasive character, its speed imaging, and its excellent ability of assessment of airway stenosis can be considered as a substitution for bronchoscopy.

IDIOPATHIC PULMONARY HEMOSIDEROSIS IN CHILDREN: A ROMANIAN EXPERIENCE

Submitted by Catalina Bulucea

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INTRODUCTION: Idiopathic pulmonary hemosiderosis (IPH) is a rare disease with unknown cause and variable outcome. It is characterized by recurrent episodes of severe hypochromic anemia, alveolar bleeding, and typical radiologic findings.
OBJECTIVE: The objective of this study was to develop an early diagnosis of IPH with real therapeutic benefits.
METHODS: We conducted a multicenter, retrospective, and prospective study using patients who were admitted to 3 Romanian pediatric clinics between 1984 and 2006. Secondary causes of pulmonary hemosiderosis were excluded.
RESULTS: Fifteen patients received a diagnosis of IPH during a 22-year period (1984–2006). The symptoms started at a mean age of 6.8 years (range: 9 months to 13 years), with a mean delay of 2.4 years before diagnosis. From the beginning, all patients had anemia, and only 6 children presented with pulmonary symptoms as well.

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