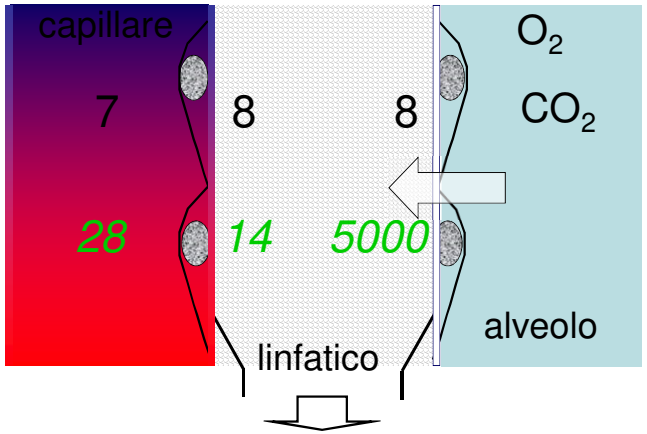
Scambi interstiziali polmonari



A. Edema polmonare cardiogeno

1. Precoce
   - tachipnea (recettori di stiramento)
   - aumento Φ linfatico
2. Intermedio
   - edema interstiziale (segni radiologici)
   - allargamento spazî interendoteliali
   - peggioramento scambi interstiziali
3. Alveolare
   - ipossia epitelio alveolare → danno cell
   - aumento permeabilità
   - passaggio plasma, GR
   - Acidosi, ipercapnia, arresto respiratorio

B. Edema polmonare non cardiogeno

1. Ipoalbuminemia (non da sola)
2. Aumento improvviso negatività FI
   - svuotamento rapido di pneumotorace
   - grave crisi asmatica
3. Compromissione membrana alveolo-capillare
   - infezioni
   - shock settico
   - pancreatite emorragica

C. Altre forme

1. Overdose, tipicamente eroina i.v. (dim σ)

2. Soggiorno ad alta quota + esercizio intenso, particolarmente < 25 anni
   - ipossia → costrizione arteriolare
   - esercizio → iperafflusso

   } edema prearteriolare ad alta pressione

   Risponde all'ossigeno

3. Neurogeno

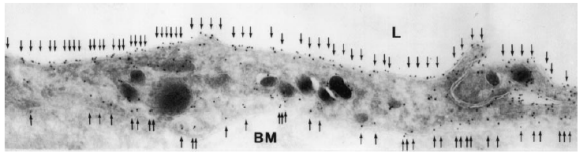


Fig. 1. Immunoelectron micrograph of endothelial cell from vascular plexus surrounding a bronchiole in human lung. Arrows indicate 10-nm immunogold particles. BM, basement membrane. (×45,000.)

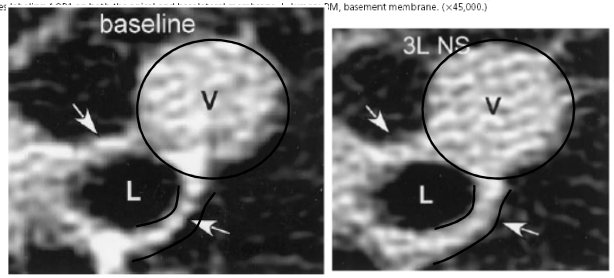


Fig. 2. HRCT images of lung from a control subject at baseline and after i.v. administration of 3 liters of normal saline (3L NS). The vessel (V) dilated in response to fluid challenge. Airway luminal area (L) did not change after fluid challenge, but the airway wall thickened after saline administration (arrows).

Decreased pulmonary vascular permeability in aquaporin-1-null humans

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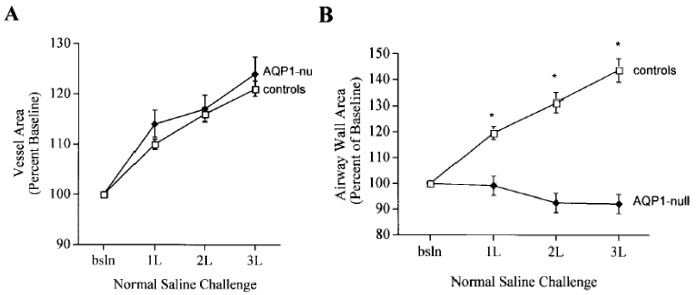
The molecular determinants of water permeability in the human lung are incompletely defined. Aquaporins (AQP) are water-specific membrane channel proteins. AQP1 is present in endothelial cells in the lung, including those in the vascular plexus around the airways. Rare individuals have been identified who are deficient in AQP1. High-resolution computed tomography scans of the lung were used to evaluate the response to i.v. fluid challenge in two unrelated AQP1-null individuals and five normal controls. The airways and pulmonary vessels were measured at baseline and after i.v. administration of 3 liters of saline. Increases in airway wall thickness after fluid administration reflect peribronchiolar edema formation. Both control and AQP1 null subjects had approximately a 20% increase in pulmonary vessel area in response to saline infusion, suggesting similar degrees of volume loading. Control subjects had a 44% increase in the thickness of the airway wall, consistent with peribronchiolar edema formation. In marked contrast, airway wall thickness did not change in AQP1-null subjects in response to saline infusion. These studies indicate that AQP1 is a determinant of vascular permeability in the lung, and demonstrate a role for aquaporins in human pulmonary physiology.



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Erythrocyte Water Permeability and Renal Function in Double Knockout Mice Lacking Aquaporin-1 and Aquaporin-3*

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DEBATE

Concealed lung anatomy in Botticelli's masterpieces *The Primavera* and *The Birth of Venus*

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Summary. Sandro Botticelli was one of the most esteemed painters and draughtsmen among Renaissance artists. Under the patronage of the De' Medici family, he was active in Florence during the flourishing of the Renaissance trend towards the reclamation of lost medical and anatomical knowledge of ancient times through the dissection of corpses. Combining the typical attributes of the elegant courtly style with hallmarks derived from the investigation and analysis of classical templates, he left us immortal masterpieces, the excellence of which incomprehensibly waned and was rediscovered only in the 1890s. Few know that it has already been reported that Botticelli concealed the image of a pair of lungs in his masterpiece, *The Primavera*. The present investigation provides evidence that Botticelli embedded anatomic imagery of the lung in another of his major paintings, namely, The Birth of Venus. Both canvases were most probably influenced and enlightened by the neoplatonic philosophy of the humanist teachings in the De' Medici's circle, and they represent an allegorical celebration of the cycle of life originally generated by the Divine Wind or Breath. This paper supports the theory that because of the anatomical knowledge to which he was exposed, Botticelli aimed to enhance the iconographical meaning of both the masterpieces by concealing images of the lung anatomy within them. (www.actabiomedica.it)