• 計畫中文名稱	肋間動脈彼此的互相交通對於脊髓血流的供應及預防下肢癱瘓的重要性---豬隻模式		
• 計畫英文名稱	The Importance of Retrograde Collaterals from Intercostal Arteries to Prevent Spinal Paraplegia in Porcine Model		
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• 中文關鍵字	--		
• 英文關鍵字	--		
• 中文摘要	實驗目的: 此研究調查的主要目的是來證明，在肋間動脈彼此的互相交通，對於脊髓血流的供應及預防下肢癱瘓的重要性。同時也可證明脊髓的血流供應,是由一廣泛的側枝循環來供應，而非由單一血管供應的豬的實驗模型。臨床上的應用為在胸主動脈支架置放後，經由第二型內漏所造成的肋間動脈彼此的互相交通，可以減少病人術後發生下肢癱瘓的機會。實驗方法: 24 隻蘭嶼豬(重 20-22 公斤)，接受一公分直徑 polytetrafluoroethylene 人工血管植入縫合。從胸主動脈的近端縫合到胸主動脈的遠端，同時將在此二吻合處中間的胸主動脈的進端及遠端縫合成為一封閉的主動脈段。肋間動脈彼此的互相交通，在此封閉的主動脈段均藉由一無線壓力偵測器來偵測。術中我們使用運動誘導電位以及術後使用血管攝影來證明此肋間動脈交通的存在。第一組(6 隻)為同時接受從頭往尾方向肋間動脈的紮除。第二組(6 隻)在先夾住兩側鎖骨下動脈後肋間動脈從頭往尾方向紮除。在第三組(6 隻)動中，在夾住正中薦椎動脈後，肋間動脈由頭往尾方向紮除。在第四組(6 隻)動物則為控制組，不摘除任何的肋間動脈。動物下肢的活動力由塔洛夫指數評量。預期結果: (1)所有動物若出現誘導電位的消失，術後都會產生下肢癱瘓。(2)若有先前夾住鎖骨下動脈或正中薦骨動脈者，在運動誘導電位的消失前，其可犧牲肋間動脈，總數明顯減少。(3)無線壓力偵測器可以正確的預測豬隻術後下肢癱瘓。預期結論: 此研究證實(1)手術中運動誘導電位的使用，對於預測術後下肢癱瘓的正確性。(2)正中薦椎及鎖骨下動脈對脊髓的血液供應的重要性。(3)無線壓力偵測器可以正確的預測豬隻術後下肢癱瘓，同時也可證明肋間動脈彼此的互相交通對於脊髓血流的供應及預防下肢癱瘓的重要性。		
• 英文摘要	Objectives: The purpose of the investigation is to establish that the intercommunication of intercostal arteries is beneficial for preventing spinal paraplegia and also to prove that spinal cord blood supply is due to an extensive collateral network rather than a single critical artery in a porcine model. The clinical implication will be after the thoracic stent graft placement, the intercommunication of intercostals arteries from the type II endoleak can reduce the incidence of postoperative paraplegia Materials and Methods: 24 LanYu pigs (20-22 Kg) underwent 1-cm diameter prosthetic polytetrafluoroethylene bypass graft from proximal to distal descending thoracic aorta with side to side anastomosis fashion and ligated proximally and distally of the intervening thoracic aortic segments. Intercommunication of intercostals arteries were measured in all animals in the intervening thoracic aortic segments. The wireless pressure sensor was then positioned in the ligated thoracic aorta segment. A Konigsberg intraluminal solid-state strain-gauge pressure transducer that is accurate in the presence of thrombus served as the control to determine the ligated thoracic aortic pressure. Intraoperavive motor evoked potential and post-operative angiography were performed in all animals. Group I (n=6) animals underwent intercostal arteries interruption in a craniocaudal direction until disappearance of motor evoked potential (MEPs). In Group II (n=6), intercostals arteries were ligated craniocaudally after clamping both subclavian arteries. In Group III (n=6) craniocaudally interruption of intercostals arteries was preceded by clamping of the median sacral artery (MSA). Group IV (n=6) were sham group without ligation of any intercostals arteries. Results were verified by Tarlov scores. Expected Results: (1) All animals with MEP loss suffered postoperative paraplegia.(2) There are fewer intercostals artery pairs clamping after ligation of subclavian or median sacral artery before the disappearance of MEPs.(3) Wireless pressure sensor in the ligated thoracic aorta can predict the incidence of postoperative paraplegia Expected Conclusion: The study confirms (1) the utility of intraoperative MEPs in predicting paraplegia; (2) the importance of both sacral and subclavian arteries in providing blood supply to the spinal cord (3) the intercommunication of intercostal arteries with the monitoring of wireless pressure sensor provides the collateral blood flow to different spinal segments, and these all will help explain postoperative patterns of paraplegia seen clinically in aneurysms of different chronicity, etiology, extent and location after thoracic stent graft placement.		