

題目：以顯影劑動態磁振造影評估先天性心臟病童的肺部微灌注

罹患先天性心臟病的嬰幼兒，經常需要以外科手術矯正心血管部份的缺損。然而不論是術前或術後，肺部血流供應情形都需要做持續的追蹤評估。目前臨床所採用評估肺部血流的標準方式包括血管攝影或核子醫學影像。前者對於顯示大血管的影像品質極佳，但屬於高度侵入式的檢查；後者可顯示整體微血管灌注情形，但無法觀察大血管血流，並且具有些許游離輻射。在這些方面，顯影劑動態磁振造影或可提供一個兩全其美的潛力。本次演講將介紹此部份的研發歷程，包括工程背景出身的研究生與高雄榮民總醫院臨床團隊之間的合作經驗，提供作為有興趣投入醫學影像研發的人員做參考。

Lecture title: Evaluation of pulmonary perfusion in pediatric patients with congenital heart diseases via dynamic contrast-enhanced proton MRI

A certain portion of pediatric patients with congenital heart diseases need surgical intervention to correct for cardiovascular anomalies, sometimes even during infancies. Continual monitoring of their pulmonary perfusion status is often required both pre- and post-surgically. Currently, the clinical gold standard to evaluate pulmonary blood flow includes catheter angiography or nuclear medicine scintigraphy. The former method exhibits excellent image quality for the major vessels of interest, yet the highly invasive nature precludes its follow-up application for these pediatric patients on a routine basis. The latter approach depicts pulmonary perfusion with less invasiveness, but does not provide information on large blood vessels and is sometimes hurdled by ionizing radiation and poor spatial resolution. Dynamic contrast-enhanced proton MRI could potentially offer superior advantages compared with catheter angiography and perfusion scintigraphy in this regard. In this lecture I shall share our experience in the continuous developments of the MRI lung perfusion analysis procedure for these patients who exhibit complex pulmonary circulation, plus some research projects dealing with the difficulties encountered during the past years.