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Editorial

Adopting the New Technology to Improve Medical and Health Care of Children

This issue collected several articles that give us some thought on how we should utilise the advancement of technology to improve our medical care, not only in hospital medicine but also in child health. Our traditional measurements and approaches on various health related issues should also be updated so we can cope with the rapidly changing world.

Traditionally, we assess the standard of healthcare by referring to some health-related indexes such as infant mortality rate. In Hong Kong, we have achieved a very low infant mortality rate for a long time. So how can we objectively assess our medical advancement further especially in paediatrics? The success in rescuing some complicated neonatal disorders such as diaphragmatic hernia can be one of such parameters. It requires the early diagnosis, early intervention, availability of expertise and accessibility of equipment such as inhaled nitric oxide, or extracorporeal membrane oxygenation (ECMO) support for a neonate or young infant. In this issue, Wong et al reviewed the experience of a local university affiliated tertiary hospital and showed a significant improvement in the survival and outcome of babies with diaphragmatic hernia over the years. As shown in this article, all babies with oxygen index >20 died before 2005, and more than 40% of them can be rescued after 2005. Early use of inhaled nitric oxide and high frequency oscillatory ventilation for pulmonary hypertension and availability of ECMO for babies with poor cardiac pulmonary function are the possible explanation of this achievement.

It was reported that close to 20% of adolescents (10 to 14 years) in Turkey were overweight and 10.5% were obese. For comparison, the prevalence of overweight among children in Hong Kong was also near 20% and was more in boys (23.5% vs. 16.3%).[1] Traditional conservative measure such as diet control and exercise enhancing program seldom yields sustained effect. That can be found in the study of Yu et al which found that 70% of young children in Hong Kong do not have sufficient physical exercise of high intensity but they rather spend more time in sedentary activity such as playing video games. So much so that it even affects their sleeping time and learning. Innovative and non-invasive means to circumvent the escalating problem of overweight and obesity remains to be found. The study by Ze Ercelik et al tried to resolve this emerging health problem by utilising popular video games from Nintendo Wii Fit, Wii Just Dance 4 and Wii Sports Resort games as a tool to provide incentive for exercise. They also used Colour MyPyramid guide to educate on proper diet. More than 10% of the overweight students returned to normal range of body weight for age after just 10 weeks of experiment. Importantly, a significant reduction in

depression scale was also found. Making use of exercise format readily accepted by young children such as video games may be the key to break the viscous cycle.

Infantile haemangioma is the most common tumour found in infant and children and 80% are located at the head and neck region. Even with natural involution, it often leaves behind some residual fatty fibrous tissue or telangiectasia so it may affect the aesthetic appearance. Cakmak HM, et al revisited the issue of using propranolol in treating infantile haemangioma. Adopting beta blocker in treating infantile haemangioma is a classical example of "repurposing of drug" in modern medicine. Propranolol is an old drug that has been used for hypertension and cardiac arrhythmia mainly in the past. The first report of using this old drug for vascular anomalies was in fact just a letter to editor,[2] but it soon (within a few months) became the "red alert" of the American Pediatric Society. At that time, the traditional approach for infantile haemangioma was either observation or use of steroid. Since then, propranolol or other beta blockers have become the standard practice. We also start to treat almost all the facial infantile haemangioma nowadays instead of adopting an observation approach. However, the debate remains on the appropriate dosage to be used. The dose ranges from 1 to 3 mg/Kg/day have been used by various groups mainly because of the concern on the possible side effect of hypoglycaemias induced by high dose propranolol. There was a randomised trial to show that 3 mg/Kg/day has better efficacy than 1 mg/Kg/day without significant increase in the side effects.[3] But up till now, there was no data on the difference between 2 mg or 3 mg/Kg/Day. This retrospective cohort study provides some preliminary evidence that they are comparable both in terms of efficacy and side effects. Further study is needed to verify this observation.

We expect practice of medicine will change drastically in the next decade, including the replacement of conventional pathological diagnosis to genetic based diagnosis. The use of artificial intelligence to read pathology slides and radiology imaging. The more widely use of robotic surgery, minimal invasive surgery, and telemedicine in hospital-based practice. The use of cellular therapy and targeted therapy not only for cancers but also for autoimmune diseases, metabolic disorders, and even monogenetic diseases. The list will get longer and longer so all of us must prepare for the changes, so we can further improve the care to our children.

GCF Chan
Chief Editor

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