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Progress in obstetrics and gynaecology – evidence-based practices and practice-based evidence reviews

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The practice of Obstetrics and Gynaecology (O&G) has evolved significantly over the years.[1,2] This issue of the *Singapore Medical Journal* (*SMJ*) features a collection of local research studies, highlighting the rapid progress of O&G in Singapore with the adoption of new evidence-based practices, and illustrating practice-based evidence reviews to improve care.

The rapid progress of O&G is best epitomised by the improved management of monochorionic (MC) twins, which has been made possible by the advent of fetoscopic laser photocoagulation (FLP) in twin-to-twin transfusion syndrome (TTTS). There is now good evidence to show that TTTS results from a chronic, imbalanced unidirectional blood flow between the twins (i.e. from artery to vein), through placental deep arteriovenous anastomoses between two fetal circulations sharing the same placenta mass.[3] FLP, one of the current treatments for TTTS that has been in use in recent years, is the only intervention that targets the aforementioned pathophysiology of TTTS. FLP has been shown to be a more effective first-line treatment than serial amnioreduction for severe TTTS that is diagnosed before 26 weeks of gestation, as demonstrated in the Eurofetus study.[4]

The evidence-based practice of FLP was first introduced at KK Women's and Children's Hospital (KKH), Singapore, in June 2011. In this *SMJ* issue, Thia et al[5] reviewed the initial five patients who underwent FLP from June 2011 to March 2014. The perinatal survival rates of this patient group managed at KKH were comparable to those of international centres; FLP is a feasible treatment for TTTS, with minimal maternal complications. In contrast to the dismal prognosis of severe TTTS in the past, the overall perinatal survival rate, double-infant survival rate and survival rate for at least one twin treated via FLP were 60% (6/10 fetuses), 40% (2/5 twins) and 80% (4/5 twins), respectively.

In a smaller O&G unit at National University Hospital (NUH), Gosavi et al[6] showed that proctor-supervised directed learning could facilitate the rapid provision of fetal therapy services. NUH initiated radiofrequency ablation for selective feticide in 2012; this was followed, in 2014, by preparations for selective FLP for TTTS, both of which are used to treat the well-described complications of MC twins.

Beyond obstetrics and maternal fetal medicine, the field of reproductive medicine has also progressed tremendously, with rapid advancements in assisted reproductive techniques (ARTs). *In vitro* fertilisation (IVF) is now a standard practice in the treatment of subfertility. An important issue for ARTs is the use of progesterone for luteal support, which can be administered intramuscularly, intravaginally or orally. Nadarajah et al[7] reviewed 1,050 women who underwent IVF/intracytoplasmic sperm injection at the Centre for Assisted Reproduction of Singapore General Hospital (SGH) between 2000 and 2011. Evidence from this practice-based review shows that the outcomes of dydrogesterone are comparable to those of intramuscular and vaginal progesterone, and that it is a reasonable option for luteal phase support for women who are uncomfortable with injections or vaginal insertions. This local study contributes additional evidence, in terms of pregnancy outcomes and associated fetal anomalies, to the current limited worldwide reviews on the use of dydrogesterone for luteal phase support in ARTs.

Urogynaecology is another O&G field that has progressed significantly. Pelvic floor exercise is the first-line treatment for stress urinary incontinence, which affects about 15% of women. If conservative measures fail, midurethral tape is the most commonly used surgical procedure. During the last 15 years, various procedures, such as transobturator tape and tension-free vaginal tape-obturator (TVT-O), have been rapidly developed to reduce the risks of the original transvaginal tape developed by Ulmsten et al.[8] TVT-Abbrevo is a modified form of the TVT-O procedure, in which a shorter tape is used with minimal dissection. Kurien at al,[9] from KKH's Department of Urogynaecology, studied a prospective cohort of 76 patients who underwent TVT-Abbrevo at KKH. The study found a high objective cure of 86.7% at six months, and low postoperative groin pain and complications. Their results were comparable with those of recent international studies of this new procedure.

As we progress toward holistic care management, it is important to incorporate the views of both patients and healthcare professionals. Invasive prenatal diagnosis has long been used to prenatally diagnose Down syndrome (DS), but it is associated with a small risk of miscarriage. Noninvasive prenatal testing (NIPT) is a recently introduced, highly sensitive screening test that uses cell-free DNA in maternal blood for the detection of DS. NIPT removes the risk of miscarriage, but confers a small risk of obtaining false-positive and false-negative results.[10,11] The adoption of this evidence-based practice in local clinical practice requires an understanding of stakeholder preferences and views. Barrett et al[12] surveyed the preferences of 301 pregnant women attending two maternity clinics at NUH for routine clinical care, as well as 69 O&G and O&G-related healthcare professionals (HPs) in Singapore, regarding NIPT for DS. The study found that women showed a preference for test safety, whereas HPs prioritised test accuracy above all other attributes. The evidence highlights the need for patient-specific counselling and, since

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women and HPs prioritise different test attributes, the importance of HPs recognising these differences so that they can provide non-biased counselling.

Practice-based evidence reviews are important to assess the quality of O&G care, ensure high standards and facilitate improvement. Two commendable studies, which were performed by a local medical student and a house officer, and supervised by the clinician faculty of SGH, reviewed two aspects of current obstetric practices.

Wong et al[13] studied the decision-to-delivery interval (DDI) for 488 Caesarean sections (CSs) and found that the majority of deliveries were within the recommended DDI corresponding to the degree of urgency of CS. The results were comparable to those from KKH.[14,15] In cases where CSs exceeded the recommended timings, they were mainly due to delays in transferring the patient to the operating theatre, as SGH is a multidisciplinary centre with heavy demand for operating theatres and anaesthetic manpower. To reduce DDI times, SGH has implemented a strict emergency CS protocol and the layout of the labour ward has also been improved to allow direct access into the operating theatre.

Lau et al[16] performed a review of CS techniques and postoperative thromboprophylaxis by analysing 486 CSs performed in SGH. The study showed that the surgical techniques currently practised in the hospital are closely aligned with evidence-based guidelines. However, among patients who underwent CSs, 2% received inadequate thromboprophylaxis. Closer vigilance in implementing appropriate thromboprophylaxis has since been instituted.

In summary, this editorial has highlighted an interesting spectrum of O&G evidence-based practices at the forefront of science, as well as O&G practice-based evidence reviews. It is heartening to see local data from these studies showing good results. The authors of these studies should be commended for advancing O&G practices and ensuring high standards of care. This virtuous process, involving the proactive adoption of new evidence-based practices and constant instillation of practice-based evidence reviews to improve care, is beneficial for the progress of healthcare in Singapore.

REFERENCES

1. Tan KH, Ang XY. Progress in Obstetrics & Gynaecology: reflections from The Bulletin of the Kandang Kerbau Hospital for Women, Singapore. Singapore J Obstet Gynecol 2016; 47:5-22.
2. Tan KH. The Singapore O&G timeline. In: Tan KH, Tay EH, eds. The History of Obstetrics & Gynaecology in Singapore. Obstetrical & Gynaecological Society of Singapore and National Heritage Board, Singapore. 1st ed. Singapore: Armour Publishing Pte Ltd, 2003: 37-47.
3. Denbow ML, Cox P, Taylor M, Hammal DM, Fisk NM. Placental angioarchitecture in monochorionic twin pregnancies: relationship to fetal growth, fetofetal transfusion syndrome, and pregnancy outcome. Am J Obstet Gynecol 2000; 182:417-26.
4. Senat MV, Deprest J, Boulvain M, et al. Endoscopic laser surgery versus serial amnioreduction for severe twin-to twin transfusion syndome. N Engl J Med 2004; 351:136-44.
5. Thia E, Thain S, Yeo GS. Fetoscopic laser photocoagulation in twin-to-twin transfusion syndrome: experience from a single institution. Singapore Med J 2017; 58:321-6.
6. Gosavi A, Vijayakumar PD, Ng BS, et al. Rapid initiation of fetal therapy services with a system of learner-centred training under proctorship: the National University Hospital (Singapore) experience. Singapore Med J 2017; 58:311-20.
7. Nadarajah R, Rajesh H, Wong KY, Faisal F, Yu SL. Live birth rates and safety profile using dydrogesterone for luteal phase support in assisted reproductive techniques. Singapore Med J 2017; 58:294-7.
8. Ulmsten U, Henriksson L, Johnson P, Varhos G. An ambulatory surgical procedure under local anesthesia for treatment of female urinary incontinence. Int Urogynecol J Pelvic Floor Dysfunct 1996; 7:81-5; discussion 85-6.
9. Kurien A, Narang S, Han HC. Tension-free vaginal tape-Abbrevo procedure for female stress urinary incontinence: a prospective analysis over 22 months. Singapore Med J 2017; 58:338-42.
10. Chiu RW, Chan KC, Gao Y, et al. Noninvasive prenatal diagnosis of fetal chromosomal aneuploidy by massively parallel genomic sequencing of DNA in maternal plasma. Proc Natl Acad Sci U S A 2008; 105:20458-63.
11. Fan HC, Blumenfeld YJ, Chitkara U, Hudgins L, Quake SR. Noninvasive diagnosis of fetal aneuploidy by shotgun sequencing DNA from maternal blood. Proc Natl Acad Sci U S A 2008; 105:16266-71.
12. Barrett AN, Advani HV, Chitty LS, et al. Evaluation of preferences of women and healthcare professionals in Singapore for implementation of noninvasive prenatal testing for Down syndrome. Singapore Med J 2017; 58:298-310.
13. Wong TC, Lau CQ, Tan EL, Kanagalingam D. Decision-to-delivery intervals and total duration of surgery for Caesarean sections in a tertiary general hospital. Singapore Med J 2017; 58:332-7.
14. Wee HY, Quek SC. Delivery by caesarean section. Effective system of mobilisation is used in Singapore. BMJ 2001; 323:931.
15. Kwek K, Yeap ML, Tan KH, Tee JC, Yeo GS. Crash caesarean section – decision-to-delivery interval. Acta Obstet Gynecol Scand 2005; 84:914-5.
16. Lau CQ, Wong TC, Tan EL, Kanagalingam D. A review of Caesarean section techniques and postoperative thromboprophylaxis at a tertiary hospital. Singapore Med J 2017; 58:327-31.