ICS updates on continence care –a urogynaecologist approach

The International Continence Society (ICS) held their society's 46th annual meeting in September 2016 in the Maranouchi district in Tokyo. The ICS is the pre-eminent scientific society in incontinence, pelvic floor disease, and lower urinary tract disorders. Approximately 20 countries were represented from Europe, North America, Australasia, and Asia. The disciplines attending and presenting scientific research from several disciplines including urologists, urogynecologists, physiotherapists, and scientists. At the ICS conference, researchers presented the latest evidence in female pelvic medicine/urogynaecology yielding a glimpse of the current and future trends in the clinical practice and research of pelvic floor disorders. This brief summary will highlight key topics and research presented at the annual ICS meeting and opine on future trends and research opportunities from a urogynecologic perspective. To supplement my review of the meetings I reached out to several Urogynecologists from Europe, Asia, and the US to get their views on future and current trends in female pelvic medicine.

Nothing has impacted female pelvic medicine more than the 2008 US Food and Drug Administration (FDA) rulings reclassifying vaginal mesh for pelvic organ support and urinary incontinence surgeries. Although some research continues, urogynecologic practice patterns and research interests worldwide have generally shifted away from the use of pelvic floor synthetic mesh devices particularly in developed countries. At least for now, Scotland has banned the use of synthetic slings. An expert panel held a symposium at Tokyo ICS presenting and discussing recent evidence related to the diagnosis and management of pelvic mesh related complications. Their conclusions give a good indication of the current and future trends in pelvic floor support surgery. The panel summarized international research supporting the continued use of mesh abdominal sacrocolpopexy (ASC) based on level 1 evidence despite it being a complex surgical procedure performed by few qualified surgeons with a known potential for mesh extrusion and pelvic organ related injury. The panel presented that the efficacy and safety of the robotic sacrocolpopexy approach appears as effective as the ASC but is still under investigation. These presenters also concluded that there may be a limited and yet to be defined role for mesh in supporting the anterior compartment but not the posterior compartment.

This is an interesting time in urogynecology as we witness a cyclic argument unfold. In general, mainly in developed countries, there has been a return to native tissue vaginal repair procedures. The literature showing high recurrence due to surgical failure was promoted as a sound reason to use pelvic mesh repairs. Their growing use and variations in their applications dominated societal research presentations for nearly a decade. Now, legal actions responding to a large number of patients harmed by some of the procedures has virtually eliminated prolapse mesh as a surgical alternative except in specific cases. A close inspection of this history in female pelvic surgery lends itself to endless opportunities for research.

International Consultation on Incontinence

Every 3 years the ICI book is reviewed and an international panel of nearly 200 incontinence experts presents their findings, this year this meeting took place at ICS.
. The text incorporates the latest evidence in incontinence and publishes sections on cellular biology, pathophysiology, assessment (clinical, neurophysiologic, imaging), pharmacology, childhood and elderly incontinence, neurologic and fecal incontinence, medical and surgical treatments of LUTS, incontinence, and prolapse, and fistulae. At the Tokyo meeting, the ICI authors presented summaries for the 6th addition of the comprehensive incontinence textbook to be published in 2017.

Several other areas of original research presented at the Tokyo ICS illustrate the scientific and clinical trends in female pelvic medicine and surgery in 2016/17.

Neuromodulation
European and Asian researchers presented findings on implantable and non-implantable tibial nerve stimulation (TNS) methods for the treatment of stress urinary incontinence (SUI), overactive bladder (OAB), and fecal Incontinence (FI). Short-term results are emerging showing positive results in decreasing urinary urgency episodes per day, urine loss per 24-hours, and severe incontinence episodes. One multi-centered study of a 3-month trial for OAB showed reductions in urinary loss over 24 hours, reductions in daily urgency episodes, and improved quality of life. Future research in tibial nerve and sacral nerve neuromodulation will certainly continue as urogynecologists look for minimally invasive treatment methods to treat anorectal and bladder dysfunction.

Pharmacologic/Metabolic
The cost of conducting drug trials and the large effort to coordinate multi-center research contributes to the lower number of pharmacologic trials presented at societal meetings. At ICS, one trial on OAB reported higher drug adherence and responsiveness to antimuscarinics in patients with higher symptom scores. In addition, switching from antimuscarinics to a beta 3-receptor agonist improved drug adherence and symptom scores in the population they studied. Clinical practice is burdened, particularly in the US, by the availability of medications to treat OAB. Many patients are limited to less costly choices such as Oxybutynin for which treatment adherence is historically poor due to limited efficacy and side effects. It seems predictable that future trends in pharmacologic research in urology and urogynecology will not include much about newer drug therapies but might explore switching or combining agents in refractory patients. The clinical application of OAB pharmacologic research evidence will be influenced by availability due to cost containment realities in many economies. One would expect research to continue regarding the efficacy of neuromuscular blockade treatments (Botulinum toxin). As with ASC, the relatively small number of experts trained to administer intravesicle injections, cost, and public perception may limit its clinical use. Duloxetine has been studied for the treatment of SUI for years and continues to be reported despite low adoption among clinicians.

One Chinese study presented explored the role of serum vitamin D in relation to a quality of life questionnaire showing that a vitamin D deficiency correlated with an increase in LUTS. Future

pharmacologic, biologic, and metabolic research examining the effect of dietary contributions will deserve attention.

Infections

NIDDK research showed that hormone status (pre- or post-menopausal) was related to a diverse distribution of urinary microbes as determined by polymerase chain reaction (PCR) assays on voided urine. In this study, pre-menopausal women demonstrated a more even microbial diversity. Future trends may warrant using PCR on voided urinary specimens to predict complications such as urge urinary incontinence.

Pelvic floor surgical and basic science research

The ICS is known for establishing standardised definitions in female pelvic medicine and vaginal fistula surgery. Continued efforts by the ICS to convene experts in pelvic surgery, medical economics, and population health could serve to help patients worldwide through published expert opinion. Equally important could be multidisciplinary research. As an example, one Australian study reported pelvic floor symptoms from patients undergoing colorectal cancer surgery. Bladder and sexual function were preserved while bowel related complications including fecal incontinence significantly worsened. Future multidisciplinary research could be a focus to address these issues.

Stress urinary incontinence surgery continues to attract small clinical trials. A recent iteration reported at the ICS included an adjustable sling showing relatively good results. Past efforts to study alternatives to slings and retropubic procedures have included minimally invasive surgeries such as periurethral microwave. A novel approach using a non-invasive erbium:yttrium-aluminum-garnet (Er:YAG) laser to treat SUI in women was reported at the ICS on a small cohort. Long-term results will likely be reported in future meetings. One study from England looked at the suggestions of urologic surgeons compared to urogynecologic surgeons in treating mid-urethral sling failures. The majority of both groups of pelvic surgeons chose a repeat mid-urethral mesh tape but there was a general lack of consensus between groups on treatment recommendations. This difference in surgical recommendations deserves some attention perhaps to standardise the care provided to women in need of surgery to treat recurrent incontinence. Discussions with urologic and urogynecologic pelvic floor surgeons may result in a better understanding of future trends in female pelvic medicine surgical research. These trends will likely involve studies examining the role of lasers to stimulate collagen and new vascularization, uterine-sparing prolapse surgery, the role of robotics, and enhanced recovery pathways to address pain control, gastrointestinal function, and mobility to speed post-operative recovery and shorten hospital stays.

Despite the move away from the use of mesh materials, one sacrocolpopexy study presented at the ICS reported results comparing a hernia mesh, polyvinylidene fluoride (PVDF) to polypropylene mesh using both abdominal and laparoscopic approaches. The authors reported low erosion rates and similar success in correcting $\geq$ stage 2 apical prolapse. Opportunities for future research could include revisiting the role of biologic and dissolvable graft materials. Conspicuously absent from the ICS meeting research presentations were presentations or

studies on stem cell technology. Some experts still consider this a potential option for the treatment of incontinence.

Urodynamics

Research in urodynamics was not abundant at the 2016 ICS conference. One project from England examined the reproducibility of an oral water-load protocol as a method of non-invasive bladder filling. It is difficult to predict the future of diagnostic urodynamic research given the mixed message from published studies over the past decade.

Lifestyle/biofeedback

One European study presented the results of public workshops on the self-management for LUTS to promote incontinence awareness and improvement. Future affordable programs such as this will deserve more attention to address standardized approaches and cultural needs.

Comorbid and concomitant disorders

An opportunity for international researchers is to examine the effect of comorbid conditions and concomitant disorders on LUTS and the economic reality of reoperation. One large study (14,966 patients) from Taiwan found that obstructive sleep apnea (OSA) was associated with an increased risk of LUTS. A Dutch study also examined OSA and found that continuous positive airway pressure (C-PAP) reduces nocturia. Hopefully, future research will look more closely at not only the effect of incontinence as a comorbidity but how diseases more prevalent in older patients effect the development and treatment of all forms of incontinence.

Questionnaires/Population-based surveys

Population-based surveys accounted for a large number of research papers that present unique opportunities for large international societies such as ICS to further define LUTS and UI on an international scope. Researchers reported on the various topics including the prevalence of symptomatic LUTS in three Asian countries, urinary incontinence (UI) in community dwelling menopausal women in Japan, predictors of UI in elderly community-dwelling women, urinary catheter use in hospitalised or institutionalised patients, hormonally deprived patients (such as breast cancer), toileting behavior in community dwelling women in the US, and the effect of constipation on LUTS. Further research such as inappropriate use of urinary catheters among hospitalised elderly patients deserves much more attention internationally. One Taiwanese study looked at the incidence, related factors, and clinical outcomes of urinary catheters among hospitalised elderly patients and found that convenience of care was the most common rationale given which contributed to longer length of hospital stay and increased catheter associated UTI (CAUTI). The financial burden of CAUTI is well known. Future research should address standardised evidence-based treatment options and rehabilitation strategies as well as alternative therapeutic options.

Hopefully, this brief summary of the 2016 Tokyo ICS meeting gives an idea of the excellent efforts of international researchers interested in pelvic medicine and surgery and trends and interest for the future.

I invite you to join me at ICS 2017 in Florence, which will undeniably be an unequalled scientific meeting. The ICS is a multidisciplinary association pertaining to the highest scientific standards and bringing a spectrum of the very best incontinence and pelvic floor disorder research from basic science to large clinical trials. ICS early bird rate is now available until 13th June 2017, register today!

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