ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF GLASGOW

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SECTION 1 | PERSONAL AND AWARD DETAILS			
Title	Miss	**PID**	134464
Surname	Kopczynska	**Forename(s)**	Maja
Scholarship/award awarded	Medical Elective Award	**Amount awarded**	£1000

SECTION 2 | PROJECT/VISIT DETAILS	
Name/Title	Training systems for Japanese endoscopists: comparison of accreditation of endoscopists in Japan and Great Britain with a focus on colorectal and gastric cancer screening
Location	National Cancer Center Japan and Fukuoka University Chikushi Hospital
Aims and objectives	The aim of the project was to observe high quality endoscopy techniques to compare and contrast training process of endoscopists in Japan and Great Britain particularly with a focus on colorectal and gastric cancer screening. This project also aimed at providing an overview of differences in endoscopic practices and overview of new technologies introduced in Japan.

Summary

Include methodology, results and conclusions if applicable

Set-up

Firstly, I would like to describe the set-up of endoscopy suites that I observed in two institutions in Japan.

In National Cancer Centre (NCC), a tertiary centre and the main oncological referral site in Japan, the endoscopy suites were extremely modern and equipped with the newest and best quality instruments. The main endoscopy suite consisted of six rooms: three dedicated for screening endoscopy (oesophago-duodenoscopy (OGD) in the morning and colonoscopy in the afternoon), and other three rooms for interventional endoscopy including procedures such as complex polyp resections, endoscopic submucosal dissection (ESD), endoscopic mucosal dissection (EMR), endoscopic ultrasound (EUS), and EUS-guided biopsies. Each week 60 to 100 procedures were carried out for patients from all across Japan. During my visit I have met many international doctors, mostly from China, Taiwan, South Korea or USA who dedicated a few months to a year of their training to visit NCC and obtain new knowledge and skills. Every day, in the morning or in the afternoon there was a departmental meeting where endoscopists could discuss the upcoming cases or present results of completed procedures.

In Fukuoka University Chikushi Hospital, the endoscopy suite consisted of seven endoscopy rooms. As it is a general hospital, the cases were more variable and included not only oncology patients. In Chikushi Hospital more focus was put on diagnostic techniques and gastric cancer screening as the chief of the department was the world leading expert in endoscopic magnification. In this hospital endoscopies were performed both by gastroenterologists and GI surgeons.

Definition differences

I have quickly learnt that not only procedures and training are different between Japan and the UK but also medical definitions, which have a significant impact on decision-making and treatments offered to patients.

Firstly, high-grade dysplasia, which in the UK is considered a “precancerous state”, is classified as a “cancer” in Japan. As a consequence, the treatments offered to Japanese patients with such lesions are potentially more aggressive.

Secondly, colorectal polyp classifications used in the UK and Japan are different. In the UK, NBI International Colorectal Endoscopic classification in mainly used (1) in contrast to Japan Narrow-Band Imaging Expert Team classification system (2). This also has an impact on lesion management decisions during endoscopy procedures: to observe, resect endoscopically or refer patient to surgeons or oncologists for further assessment and treatment.

Training differences

In the UK the endoscopist training is very structured. It is supervised by Joint Advisory Group (JAG) on GI Endoscopy through JAG Endoscopy Training System (JETS) programme, which supports trainees in their endoscopic training, and encourages the formative and summative assessment processes in order to ensure appropriate quantity and quality of training for each training endoscopist (3). In Japan, on the other hand, the training is not structured and is based on individuals obtaining training from their seniors and experts in the field. Firstly, the trainees observe the procedures, then learn to use the endoscopes, carry out simple diagnostic procedures (starting with OGD before proceeding with colonoscopies), assist with more complex procedures such as EMR or ESD and finally obtain to ability to perform all the procedures with no supervision. This means that the

quantity of performed procedures can be highly variable depending on the training centre as well as learnt techniques could be different between the trainees depending on the exposure to cases. However, in many centres in Japan the trainee gastroenterologists can dedicate one to two years of their specialist training on solely endoscopic training, which can potentially provide them with much higher exposure to various cases and enable them to obtain and master more skills than in the UK.

Screening differences

In Japan, a colorectal cancer (CRC) screening programme has been in place since 1992 and includes patients aged 40 years or older. The program applies the faecal immunochemical test (FIT) (4). In the UK, CRC screening is offered every 2 years to men and women aged 60 to 74 using guaiac fecal occult blood test (gFOBT). FIT testing is being introduced since late 2018 and eventually replace the gFOBT test. An additional one-off flexible sigmoidoscopy is being introduced in England for patients at the age of 55 (5).

The biggest difference is a presence of gastric screening test in Japan in contrast to no screening in the UK. The reason for introducing the gastric cancer screening in Japan is its high prevalence (29.9 cases per 100,000 in Japan versus 10.0 cases per 100,000 in Japan) (6). In Japan, gastric cancer screening was conducted in local areas around the 1960s, and since 1983, it has expanded nationwide to all residents aged 40 years and over (7). Based on the balance of benefits and harms, recommendations were formulated for population-based and opportunistic screenings and included radiographic screening and endoscopic screening (7).

Procedure and technology differences

The main difference in endoscopic procedures noted in the NCC in comparison the UK was the use of propofol instead of midazolam for sedation. This is possible in NCC as all the endoscopy staff obtain an anaesthesiologic training.

In Japan use of chromoendoscopy is much more common in the UK, not only with indigo carmine (which coast the mucosa and enables visualisation of tissue architecture) and methylene blue (which facilitates distinguishing a normal mucosa from cancerous tissue) dyes but also crystal violet, which provides a superior nuclear staining, facilitating detection of small, early malignant changes in the colon (8).

Most endoscopes used in Japanese centres have inbuilt zoom function, which enables better magnification of the lesions. One of the most recent innovations is also use of endocytoscopy that enables surface morphology to be assessed in real time, with magnifications in of 450x. It is intended to provide opportunity to introduce an “optical histology” with an ultimate aim to reduce the need for biopsy and standard histology. The use of Artificial Intelligence (AI) technology is also beginning to be incorporated in clinical practice in Japan. One example is a recently introduced EndoBrain – AI system that supports optical diagnosis of colorectal polyps with sensitivity of 84.5% and specificity of 97.5% (9).

References

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2. Minoda Y, Ogino H, Chinen T, Ihara E, Haraguchi K, Akiho H, et al. Objective validity of the Japan Narrow-Band Imaging Expert Team classification system for the

differential diagnosis of colorectal polyps. Digestive Endoscopy. 2019. [Epub ahead of print]

3. JAG Endoscopy Training System. 2019. Available from: https://www.jets.nhs.uk/ePortfolio.aspx2019 [

4. Hotta K, Matsuda T, Kakugawa Y, Ikematsu H, Kobayashi N, Kushima R, et al. Regional colorectal cancer screening program using colonoscopy on an island: a prospective Nii-jima study. Japanese Journal of Clinical Oncology. 2016;47(2):118-22.

5. Bowel cancer screening: programme overview. 2018. Available from: https://www.gov.uk/guidance/bowel-cancer-screening-programme-overview2018 [

6. Ferlay J, Soerjomataram I, Ervik M. Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11. 2014. Available from: http://globocan.iarc.fr2014 [

7. Hamashima C, Systematic Review Group and Guideline Development Group for Gastric Cancer Screening G. Update version of the Japanese Guidelines for Gastric Cancer Screening. Japanese Journal of Clinical Oncology. 2018;48(7):673-83.

8. Trivedi PJ, Braden B. Indications, stains and techniques in chromoendoscopy. QJM : monthly journal of the Association of Physicians. 2013;106(2):117-31.

9. Misawa M, Kudo S-e, Mori Y, Nakamura H, Kataoka S, Maeda Y, et al. Characterization of Colorectal Lesions Using a Computer-Aided Diagnostic System for Narrow-Band Imaging Endocytoscopy. Gastroenterology. 2016;150(7):1531-2.e3.

Learning outcomes

Detail here how the aims and objectives were met

In order to analyse the differences in endoscopic procedures between Japan and the UK I attended numerous endoscopic sessions and discussed my observations with endoscopists at all levels of training. I observed standard screening colonoscopies and OGDs and well as complex polyp management (ESD and EMR), advanced endoscopy techniques and endoscopic interventional radiology procedures. I consolidated my knowledge and understanding during MDT meetings for oncology and pathology as well as early morning endoscopy discussions. I have also participated in two medical conferences during my visit in Japan where I learnt about innovations in endoscopy in other Asian countries.

Evaluation

How has this scholarship/award impacted on your clinical/NHS practice or equivalent?

My ambition is to become an academic gastroenterologist, combining research with excellent clinical care. I believe that my medical elective will give me a head start in my career and enable me to tailor my training pathway to realize my passions.

This project increased my awareness of the ground-breaking discoveries and state-of-the-art technology implemented in endoscopy procedures in Japan that I hope I will use in my clinical practice in the future. It inspired me to learn more about the ways medical doctors could get involved in developing new technology in order to fulfil patients' needs and increase the quality of diagnostic procedures.

My elective in Japan also enabled me develop specific clinical interests and interact with inspirational experts in the field of my interest, with whom I hope to collaborate in the future. This was very beneficial for my personal development. This project inspired me to continue investigating the ways to improve the outcomes for patients with colorectal and gastric cancers, focusing on innovations in screening programmes.

This project also provided me with an unique experience to learn about different cultures, practice medicine in a different language and share ideas with doctors from different backgrounds.

The National Cancer Centre in Tokyo, Japan.

Observing endoscopic interventional radiology procedures.

The 1st Endoscopic Ultrasound teleconference involving six countries in Asia.

SECTION 4 | EXPENDITURE	
Breakdown of expenditures *Please demonstrate how the scholarship/award funding was used to support your project/visit*	Below is a list of the major expenditures during the elective. Return flight to Tokyo - £830 Japan Railway Pass - £320 Accommodation in Tokyo and Fukuoka - £1000

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