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Author(s)	Ben Y. F. Fong & Yee Man Tsui
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How to Reduce the Waiting Time of Total Joint Replacement in Hong Kong?

Ben Y. F. FONG

School of Professional Education & Executive Development
College of Professional & Continuing Education
The Hong Kong Polytechnic University
Kowloon, Hong Kong
yffong@speed-polyu.edu.hk

Yee Man TSUI

School of Professional Education & Executive Development
College of Professional & Continuing Education
The Hong Kong Polytechnic University
Kowloon, Hong Kong
yeyeeekaren@yahoo.com.hk

ABSTRACT

The waiting time of total joint replacement (TJR) is very long in the public hospitals of the Hospital Authority (HA). It may lead to negative impacts on the outcomes of TJR. While HA continuously develops joint replacement centres, it still cannot reduce the waiting time of TJR significantly. The quality of healthcare services in both the public and private sectors is comparable but there are very large differences in the charges. Hence, patients are willing to wait on the list. To reduce the waiting time of TJR, two approaches are recommended. There can be a Government subsidisation programme of TJR to shift patient to private hospitals. Adequate manpower, particularly in physiotherapists, Chinese Medicine Practitioners, clinical psychologists and nurses, should be a top priority to reduce the length of stay in the hospitals, releasing more beds for patients in the queue.

KEYWORDS: Waiting time, Total joint replacement, Public-private partnership, Postoperative treatment

1 INTRODUCTION

Cataract surgery and total joint replacement (TJR) are two of the elective surgeries provided by the Hospital Authority (HA). The waiting time depends on the patients' condition (Hospital Authority, 2018). There are over 2,000 total knee replacements every year in Hong Kong (Lee et al., 2016). Although HA has already developed five joint replacement centres, the waiting time of TJR in public hospitals is still very long, ranging from 54 to 107 months (Hospital Authority, 2018). In the HA Annual Plan 2018-19, one more joint replacement centre will be established at Tseung Kwan O Hospital to provide 150 additional TJR surgeries in the first quarter of 2019 (Hospital Authority, 2018). More importantly, the long waiting time may increase the risk of surgery and other health problems while waiting for TJR, particularly for elderly patients. Therefore, reducing the waiting time of TJR is not only to fulfill the demand, but also to reduce the risk and complications.

1.1 Indications for Total Joint Replacement

Damages to the joints, mostly from arthritis, are common indications for total joint replacement. There are three types of arthritis, osteoarthritis (OA), rheumatoid arthritis (RA) and post-traumatic arthritis (PTA). All of these cause chronic joint pain (Foran, 2015). OA is one of the common chronic diseases linked to ageing. Lifestyle, weight and repetitive movements also lead to OA (Arthritis Foundation, n.d.). The cartilage is broken down, resulting in rubbing between the bones. Moreover, severe injuries will also cause damage to the joints. Then symptoms of pain, stiffness, and swelling occur (Arthritis Foundation, n.d.). According to Kaplan et al. (2013), 10% to 15% of people who aged over 60 may have OA. Although there are no published epidemiological data about OA in Hong Kong, there is a Chinese study, with the same ethnicity for reference in Hong Kong situation. For the Chinese aged over 60 in Beijing, there are 42.8% of female and 21.5% of male having radiographic OA of the knees (Zhang et al., 2001). When OA becomes worse, TJR is used to relieve the pain and to enhance the ability of movement. TJR may also improve the ability of the sufferers to continue their works and to carry out self-management. The artificial joint replaces the damaged joint (Foran, 2015).

1.2 History of Total Joint Replacement

TJR has over 100 years of history. With the advancement in the materials used and the technologies in surgery, TJR carries fewer complications and is more flexible, as well as acceptable, to the patients. In the first half of 20th century, surgeons tried to use glass as the implant material, but it failed because it could not support the body weight. Then stainless steel was used (Knight et al., 2011).

There are now over 150 models of implants. Each type has a different design regarding whether to keep the ligaments or not (Manner, 2016). The implant materials are metal-on-polyethylene, ceramic-on-ceramic and ceramic/metal mixtures (Knight et al., 2011). Titanium and cobalt-chromium are used as metal parts of the implant since these materials are biocompatible and can last for a long period of time (Manner, 2016). The advancement of techniques has helped the patients to reduce suffering and to avoid the chance of revision TJR.

2 FACTORS LEADING TO LONG WAITING TIME

Factors leading to long waiting time include the disease pattern, patients' decision, the length of hospital stay (LOS), resources and healthcare manpower. Yan et al. (2011) have studied the change of total knee replacement (TKR) pattern for the primary knee OA in Hong Kong. The number of TKRs increased from 721 to 1229 during 2000 to 2009, but the mean age of patients in each gender is similar. The high-risk group is still the people who are older than 60 years old. With the increasing life expectancy, the number of TKRs for patients over 80 years old is significantly increased.

In the traditional Chinese thinking, people should avoid harming the body received from parents, and this belief may have deterred the elderly patients to have TJR in the past. Currently, people are more open-minded, and fewer people would refuse TJR. Also, the acceptance of surgery in the community is increased as people become more attentive to health. Therefore, the demand of TKR is increasing. The waiting time of TKR in 2000 was 1 to 2 years, and was increased to 3 to 4 years in 2011 (Yan et al., 2011). On the other hand, insufficient resources and manpower are other reasons for increasing waiting time of TJR, particularly when the Government covers all costs of operations in public hospitals.

LOS is counted from the day of surgery to the day of discharge. It can affect the turnover rate of hospital beds. Shortening LOS helps to increase the number of TJR and it can reduce the cost per case. Lo et al. (2017) have reviewed all primary TKR operated at Yan Chai Hospital Total Joint Replacement Centre from October 2011 to October 2015 with the aim to find out the factors influencing LOS after primary TKR. The results are highly skewed. The mean of LOS is 6.8 days and the median is 6 days, with the range from 3 to 46 days. However, the LOS is difficult to predict. It is noted that age, bilateral TKR, American Society of Anesthesiologists class 3, complications and the need for blood transfusion, Intensive Care Unit care, and urinary catheterization are the factors leading to longer LOS.

However, the care after surgery is important in reducing the LOS. Improving wound care, careful implant insertion and adherence to the strict guidelines of anticoagulation can help to avoid complications and delayed discharge. Moreover, the study has found that LOS of bilateral TKR is only 1.37 days longer than that of unilateral TKR. This practice can significantly reduce the total LOS and the cost of operations (Lo et al., 2017). The support of physiotherapy is also an important factor in LOS. Shortage of physiotherapists is significant, and the manpower gap increases from 12.4% to 21.6% since there is only one University Grants Committee (UGC)-funded institution providing the physiotherapist programme in Hong Kong (Food and Health Bureau, 2017).

Resources is another key of long waiting time. Some members of the Legislative Council Panel on Health Services think that lack of financial incentive for hospitals is the factor leading to long waiting time for all public hospitals' services (Legislative Council, 2018). When the resources are limited, it is difficult to increase the quota for TJR significantly to fulfill the needs. However, only allocating more resources to TJR alone may not be enough to reduce the waiting time. The healthcare system should be viewed as a whole, particularly with attention to the Hospital Authority. There is an apparent imbalance among the hospital clusters in the allocation of resources. Under the HA's internal resource allocation system, the underfunded clusters appear to continue to have the problem of shortage of resources (Legislative Council, 2018). It seems that the long waiting time cannot be resolved. On the other hand, the patients are also responsible in terms of resources. Non-attendance is a known factor of prolonged waiting time of TJR. It is a major problem in health services and often reduces the productivity and efficiency. Such patient behaviour also increases the cost of healthcare service indirectly and is at the same time wasting the "limited" public resources (Johnston et al., 2007).

The shortage of manpower in the healthcare sector is a widely known issue. According to the report of Strategic Review on Healthcare Manpower Planning and Professional Development, published by Food and Health Bureau (2017), shortage of healthcare manpower is present because of the ageing population and the increasing provision of services. Although there is an increasing number in all types of healthcare professionals, with the exception of midwives and listed Chinese medicine practitioners (CMPs), the overall manpower is short in medium to long term. Such shortage will prolong the waiting time in most, if not all, clinical services in the public hospitals, and perhaps the private sector as well.

3 CONSEQUENCES OF LONG WAITING TIME

Delay in TJR may affect the patients' physical, social and mental conditions (Yuen, 2014). Long waiting time will increase the burden of health condition. According to Ackeman et al. (2011), Health-Related Quality of Life (HRQoL) would be worsened during waiting. Over 70% of patients may result in deterioration of pain and fatigue. The patients will suffer from disability for the longer period of time. More than half of participants become less confident in managing their own health. These negative impacts may not only affect the patients, but their family as well. A local study has shown that 44% of participants with OA agree that OA may affect the family and the close relationships. For the severe conditions, patients have to employ domestic helpers and take more days off work, leading to social impacts (Woo et al., 2003). Since OA is an irreversible and degeneration disease, the longer the waiting time, the worse the condition will be, and the social impact may be aggravated.

The long waiting time also increases the costs of maintaining the ability of movement and reduction of the suffering (Fielden et al., 2005). Furthermore, the outcome of TJR may also be affected. Hajat et al. (2002) have found that there is a relationship between the waiting time and the outcome of the total hip replacement (THR). Patients who receive THR after longer waiting time may have worse Oxford Hip Score before and after the operation. Patients who have lower sociability, which is affected by mental health status, may also result in worse score (Hajat et al., 2002; Breedveld, 2004). Therefore, reducing the waiting time can lead to better outcome of TJR and can lessen the burden of patients in the physical, mental, social, and financial aspects.

4 REDUCING WAITING TIME

4.1 Subsidisation of Total Joint Replacement

The quality of healthcare service in public and private sectors in Hong Kong is generally similar, but the out-of-pocket fee is highly different (Johnston et al., 2007). Perhaps subsidisation of TJR at private hospitals may be a solution to reduce the waiting time of TJR.

The waiting time of TJR in private hospitals is extremely different to that in public hospitals. Telephone interviews were made to private hospitals on 6th February 2018 by one of the authors. Hong Kong Adventist Hospital -Tsuen Wan, Canossa Hospital, and Union Hospital answered that after the diagnosis and consultations, it only needed to wait for approximately few days to few weeks for the patients to receive the TJR. It depended on the doctor's schedule and the arrangement of operating theatres. In another words, TJR can be performed by appointment. Although waiting time of TJR is short, the operating fee in private hospitals is much higher than that in public hospitals, from about HK\$130,000 to HK\$200,000 (Gleneagles Hong Kong Hospital, 2017; St Paul's Hospital, 2015; Canossa Hospital (Caritas); Union Hospital, 2017). In public hospitals, HA does not charge specifically for operations. Patients only need to pay the daily ward charges of HK\$120, inclusive of the operation and cost of implant materials. However, the long waiting time does not drive people to choose other expensive options of the healthcare service. People who are on the waiting list of TJR may not have a strong financial potential or desire to transfer from the public to private sector just to have TJR earlier. They tend to stay on the waiting list in public hospitals.

There is a public-private partnership (PPP) initiative called Cataract Surgeries Programme (CSP) for cataract surgery. Patients who are having the longest waiting time on the cataract surgery waiting lists under HA can join CSP to receive the cataract surgery in the private sector. The patients receive a fixed amount of HK\$5,000 of subsidisation and pay no more than HK\$8,000 for the surgery (Hospital Authority, 2018). As a result, it significantly reduces the waiting time of cataract surgery. In the year 2008 at the beginning the CSP, the

overall waiting time was 37 months (Hospital Authority, 2013). The current overall waiting time is 17 months (Hospital Authority, 2017).

As in the CSP, subsidisation of TJR can potentially help to reduce the waiting time of TJR. The selection criteria of target population can be the same as in CSP. The amount of subsidisation can be evaluated from the package charges in private hospitals and the cost of TJR. TJR is classified as ultra-major I by the insurance industry (AXA General Insurance Hong Kong Limited, 2012). The charge of operation for ultra-major I in public hospitals for private cases is between HK\$72,050 to HK\$88,300 (Leong, 2017). Therefore, the charges of TJR package in private hospitals are reasonable.

The Government can consider a subsidy of HK\$90,000 to “eligible” patients from public hospitals for their TJR operations to be carried out in private hospitals. HK\$90,000 is the around 60% of the average charge of TJR package, in line with CSP that subsidises 60% of the total charges of cataract surgery. These patients will pay the shortfall, which is approximately HK\$60,000, depending on the private hospital chosen. However, such amount may be a substantial financial burden to some public patients. Ancillary measures can be introduced to assist them. Hopefully, the waiting time of TJR in public hospitals can be reduced.

4.2 Shortening the Length of Stay

4.2.1 Physiotherapy

Physiotherapy is essential and is very important after TJR. It is required for every postoperative day to ensure the patients have the ability to walk before discharge (Lo et al., 2017). Demand of physiotherapy is increased due to the increasing number of patients who need rehabilitation after TJR. It is also related to LOS because it can maximize the functional ability and reduce the complications like hip dislocation and wound infection (Health Quality Ontario, 2005). A systematic review has found that physiotherapy begins within 24-hours of surgery can effectively improve the range of motion and reduce LOS at the same time (Henderson et al., 2018).

Once LOS is shortened, hospital beds are available for other patients to receive TJR and results in reducing the waiting time. On the contrary, when there is a shortage of physiotherapists, LOS may be prolonged, affecting the waiting time. HA should ensure the patients to begin physiotherapy on time by increasing the number of physiotherapy sessions as the highest priority.

On the other hand, the long waiting time also requires the support of the physiotherapy to relieve the pain suffered by the patients. The president of Hong Kong Physiotherapy Association (2017) has mentioned that physiotherapists are having heavy workload and the predicted shortage of physiotherapists is over 900 in 2030. As a result, patients with OA may have limited sessions of physiotherapy. Extra sessions will not be considered by most patients because of the financial and personal issues. For those patients who cannot afford extra physiotherapy, the symptoms of degeneration will become more severe. Their ability of self-management is reduced and thus more pressing of receiving TJR. Hence, it needs to investigate the issue of the shortage of physiotherapists and the impacts thus arisen from it. A long-term strategy on the future supports of physiotherapy, particularly in conditions related to TJR, must be formulated, involving stakeholders like the Government, the profession, education and training, and all healthcare sectors.

4.2.2 Chinese Medicine

Chinese medicine, especially acupuncture, is effective to relieve pain and reduce the

dysfunction among patients suffering from OA (Selfe & Taylor, 2008). The Government can subsidise a part of the Chinese medicine service so that patients can afford the treatments which have a lower cost than the extra physiotherapy sessions in the private sector (Hospital Authority, 2008). For the patients after TJR, acupuncture can be provided as complementary medicine or integrative medicine. It can effectively reduce pain and improve the ability to receive physiotherapy during the initial postoperative period. It also reduces opioids usage, which has a positive relationship with LOS and may prolong the waiting time (Crespin et al., 2015). Therefore, acupuncture is a good nonmedicinal adjunct to reduce the pain and hence the waiting time.

Furthermore, there is the Integrated Chinese-Western Medicine Pilot Programme in HA. It provides Chinese medicine services to the in-patients who have stroke, cancer or acute low back pain (Hospital Authority, 2014). It is feasible and practical to extend the coverage to patients after TJR. A study has found Chinese medicine, as the recovery treatment after TKR, is effective to improve the recovery rate. There are significant results in relieving pain and reducing the flexion contractures (Yang et al., 2013). Thus, Chinese medicine can help to reduce LOS, which can be prolonged as a result of the shortage of physiotherapy services in public hospitals. It can also indirectly reduce the waiting time for TJR. However, most CMPs are working in the private sector (Food and Health Bureau, 2007). HA should employ more CMPs to work in public hospitals.

4.2.3 Psychological Support

There is also a negative impact of mental health arising from long waiting time. Furthermore, some patients may become depressive and anxious after TJR as in most major operations. The mental wellness affects the recovery rate. Therefore, psychological support is needed before and after TJR. Clinical psychologists can find out the patients' psychological changes and understand more about the patients' concerns. They will help the patients to overcome the hardship and psychological reactions. Clinical pathway should include psychosocial condition review, particularly during the postoperative period. More psychological support sessions should be provided.

A cohort study has shown that psychological support, which is not a routine clinical practice in the local hospitals, will lead to better mental well-being and help the patients to achieve the physiotherapy objectives and thus reducing LOS (Tristaino et al., 2015). It is suggested that psychological support should focus on the stress and emotional changes associated with postoperative recovery. Clinical psychologist can help the patients to build up the confidence in rehabilitation and to improve their quality of life. Effectively the rehabilitative process becomes much smoother and thus the psychological support by clinical psychologists will indirectly reduce the LOS.

5 CONCLUSION

There are a number of dimensions to reduce the waiting time of TJR, apart from developing more joint replacement centres in the public sector. Due to the very high and significant out-of-pocket fee differential for the operations to be performed in the public and private sectors, transferring cases to the private hospitals through Government subsidisation programme can be considered as an option to combat the long waiting time in public hospitals. As measures to reduce the length of stay for TJR, the Government and HA should pay attention to the timely provision of post-operative care and manpower, particularly physiotherapists, Chinese Medicine Practitioners, clinical psychologists and nurses.

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