

Enhanced recovery programme after TKA through multi-disciplinary collaboration



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Introduction

- **Osteoarthritis of Knee (OAK) is the leading cause of chronic disability**
- **Total knee arthroplasty (TKA) is cost effective**
 - Pain relief
 - Quality of life

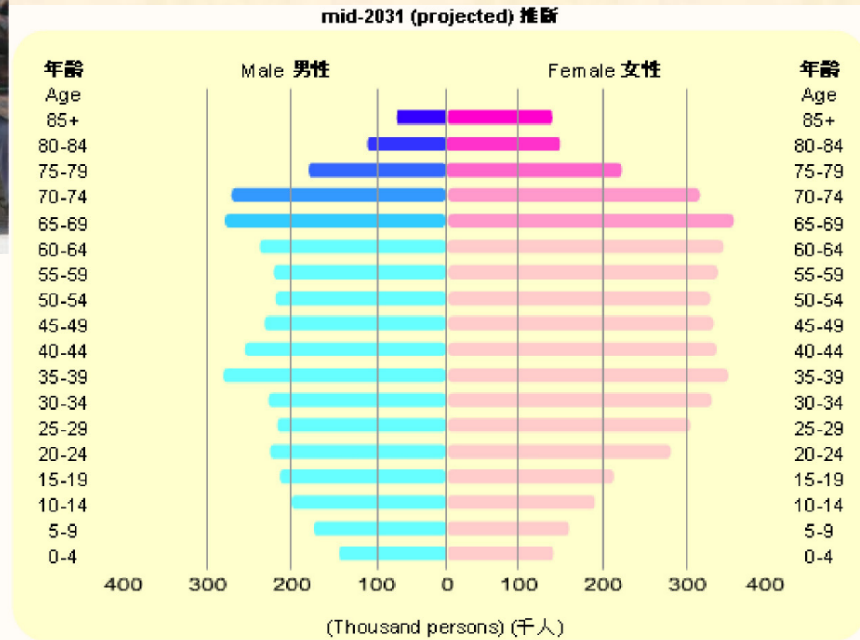


WHO Global Burden of Disease 2010

Elena Losina et al, Cost-effectiveness of Total Knee Arthroplasty in the United States, Arch Intern Med. Author manuscript; available in PMC Dec 22, 2009



Aging population in HK



Population Pyramids for mid-2001 and mid-2031
(2001年年中及2031年年中人口金字塔之比較)

Source: Report of the Task Force on Population Policy
(資料來源: 人口政策專責小組報告書)



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Introduction



- **Enhanced recovery programme (ERP) in TKA**
 - quicker functional recovery
 - reduced morbidity
- **Principles**
 - Preop comprehensive assessment
 - Good multimodal pain control
 - Intensive rehabilitation
 - Avoid complications



Larsen K et al. Cost-effectiveness of accelerated perioperative care and rehabilitation after total hip and knee arthroplasty. J Bone Joint Surg Am 2009;91:761-72

Multidisciplinary Collaboration

- **Specialized team approach to create an optimal regimen of patient-centered care**
 - **Orthopaedic surgeons**
 - **Anaesthesiologists**
 - **Nurses**
 - **Physiotherapists**
 - **Occupational therapists**
 - **MSW**



1) Preoperative comprehensive assessment



Surgeon



Anaesthesiology



Nurse



Allied health : OT, PT

2) Preoperative Education



3) Good multimodal pain control

- **Intra-operative**
 - Periarticular injection of mixture of drug
 - immediate postop pain control
- **Post-op**
 - Acute Pain Service by Anaesthesiologist



- Andersen LØ , Husted H, Otte KS et al. A compression bandage improves local infiltration analgesia in total knee arthroplasty. *Acta Orthop* 2008;79:806-11

4) Intensive rehabilitation



Early Postop Mobilization

- **Focus on early mobilization**
 - **Enhanced rehabilitation**
 - **Reduces the risks of bed-ridden morbidity**
 - **eg DVT, pneumonia, UTI**



Intensive physiotherapy training



Postop OT Mx

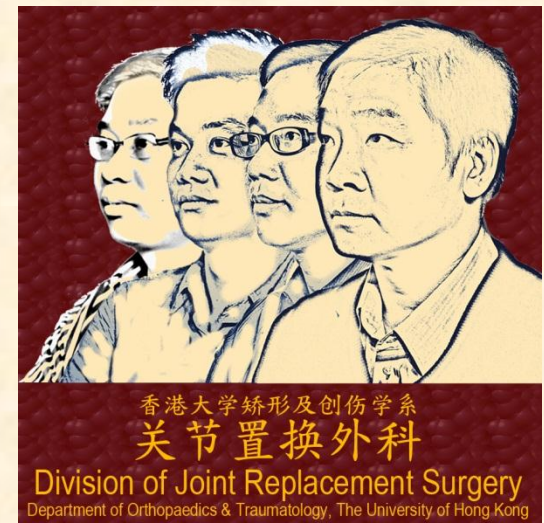
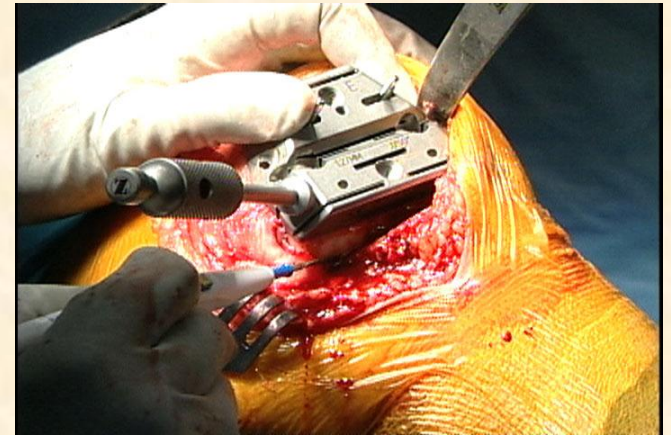


5) To avoid complications



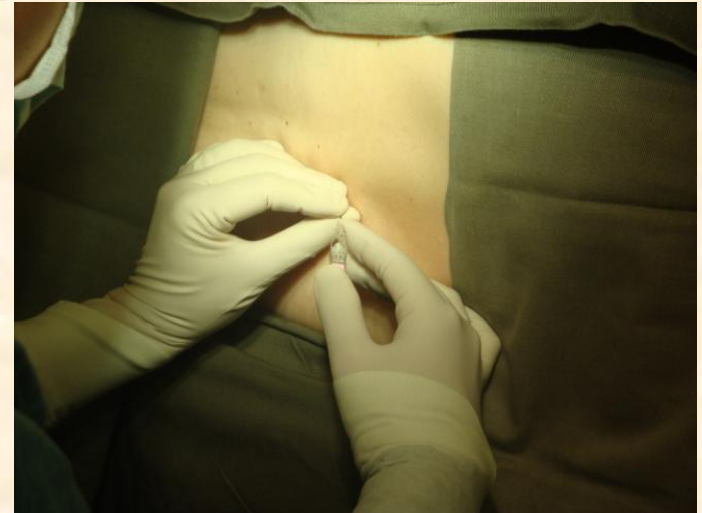
Dedicated surgical team

- Reducing operation time
- Minimizing complication



Dedicated Anaesthesiologist

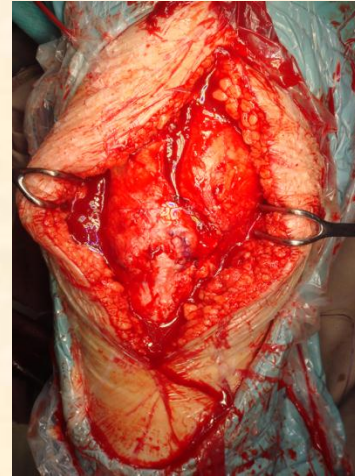
- **Regional anaesthesia is superior to general anaesthesia**
 - **reduces postoperative complications by 30-60%**



Rodgers A, Walker N, Schug S et al. Reduction of postoperative mortality and morbidity with epidural or spinal anaesthesia: results from overview of randomised trials. *BMJ* 2000;321:1493.

Patient Blood Management

- **Blood transfusion**
 - Prolonged hospital stays
 - Morbidity
- **Reducing the blood loss & transfusion**
 - Transfusion guideline
 - Intra-articular tranexamic acid



Husted H, Holm G, Jacobsen S. Predictors of length of stay and patient satisfaction after hip and knee replacement surgery: fast-track experience in 712 patients. Acta Orthop 2008;79:168-73

Deep Vein Thrombosis prophylaxis



- **Mechanical**
 - Sequential compression Device
- **Chemical**
 - Aspirin 300mg for 2/52

Objectives

- **Since May 2013, the traditional rehabilitation plan was modified**
 - **ERP was implemented for patients after primary TKA**
- **Aim**
 - **To review the outcome of the ERP**
 - **Compare with traditional rehab before May 2013 as control**



Materials and Methods



Methodology

- **Inclusion**
 - **Patients, who were transferred to the rehabilitation hospital after primary TKA done**
 - **between May 2013 and January 2014, in the ERP**



Methodology

- **Case-control study**
 - **Case**
 - **Patient in ERP**
 - **Control**
 - **Patient traditional rehab in historical cohort (May 2012- Jan 2013)**
 - **Same discharge criteria**
- **Statistical Analysis**
 - **SPSS**



Outcome measures

- 1. Rehabilitation outcome at OPD FU in 6/52**
 - **Knee Society Knee Score (KSKS)**
 - **Knee Society Knee Function Score (KSKFS)**
- 2. Length of stay in rehabilitation**
- 3. 30 day Readmission Rate**



Results



Patient's data in Traditional Vs ERP

	Traditional	ERP	P-value
No of patients	168	168	
Age	73.4±9.5	72.7±8.5	0.81
Sex (F:M)	123:39	130:38	0.72
Diagnosis (1°OA :2° OA)	150:18	152:16	0.75
Unilateral : Bilateral	142:26	140:28	0.77
KSKS	50.1±2.5	48.4±2.5	0.68
KSK Functional Score	38.4±4.5	36.5±3.4	0.79



Outcome measures

		Traditional	ERP	Statistical Sig
Rehabilitation Outcome				
<i>a. KSKS</i>		76.5±10.5	80.1±12.5	0.72
<i>b. KSK Functional Score</i>		80.2±12.5	78.5±13.9	0.85
30 day Readmission Rate (%)		1.7%	2.4%	0.74
LOS (day)	<i>Unilateral TKA</i>	13.4±5.5	7.1±1.8	<0.05
	<i>Bilateral TKA</i>	20.5.5±4.5	13.4±2.1	<0.05

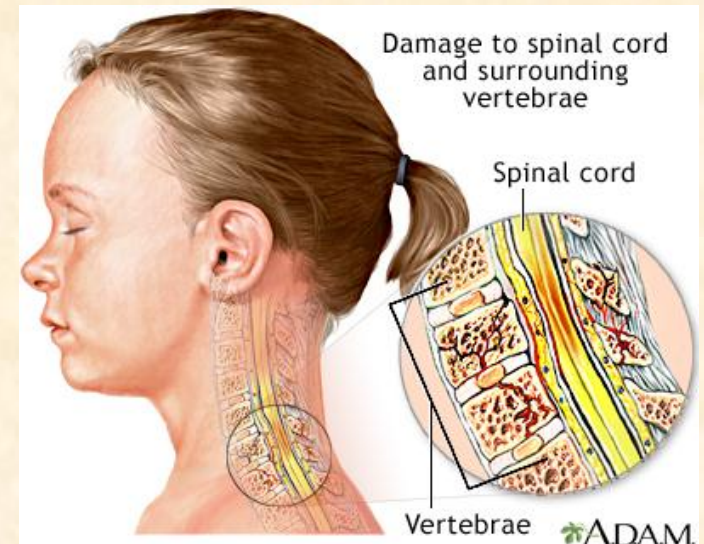
Cost-effectiveness

- **Cost of In-patient rehab : \$3740/day**
- **LOS difference : 7 days**
- **Cost Saved in rehab by EPR compared with tradition rehab**
 - **\$4.3 Million ($\$3740 \times 7 \times 168$)**



Other benefits of ERP

- **Increase bed availability for rehabilitation other orthopaedic condition**
 - **Spinal cord injury patient**



Conclusion

- **The ERP after TKA**
 - Improving efficiency of rehab
 - reduce length of hospital stays
 - maintaining rehabilitation outcome
- **With aging population of HK,**
 - Increasing efficiency of TKA service is important





Thank You



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