A Patient Education Program for Opioid Sparse Hip and Knee Arthroplasty Results in Reduced Long Term Opioid Consumption: A Four Year Prospective Multi-Centre Observational Study.

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Declaration of Interest / Disclosure

I declare that in the past three years I have:

- held shares in: Nil
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Introduction

- Opioid epidemic poses health and economic burden
- Growing concern regarding worldwide opioid prescriptions + overdoses
- Arthroplasty associated with new opioid prescription in previously opioid naïve patients
- Can pre-operative education and multidisciplinary approach result in decreased longer-term opioid use, without compromising patient satisfaction or recovery?

Study

Multi-centre RCT at two teaching hospitals

1,444 patients (917 knee, 527 hip)

4 data points – Pre-op, Post-op: 6 weeks, 3 and 12 months

Multi-disciplinary approach

- Orthopaedic surgeons, Anaesthetists, Physiotherapists, Nursing Staff

Group-based education session 4 weeks pre-operatively

Intervention

Pre-operative

- GP advised of upcoming surgery, taper dose of opioid
- Reviewed by anaesthetics for assessment
- Physiotherapy for pre-habilitation
- Mandatory patient education session

Intra-operative

- Premedication of oral paracetamol
- Spinal anaesthesia + regional block
- No (or low dose) intrathecal morphine
- Local Infiltration Analgesia (LIA)

Intervention

Post-operative

- Early post-operative mobilisation
- Regular simple analgesia / standardised
- PRN use of opioid-based medications
- Cessation of slow-release opioids
- Twice daily physiotherapy
- Daily reinforcement on Orthopaedic and Anaesthetic ward rounds

Discharge

- Multi-modal analgesia on discharge
- Preference for no opioids, maximum of 10 tablets
- Follow up with arthroplasty team
- Written communication with GP, reinforcing expectation of opioid-free recovery

Table 1. Baseline patient characteristics

	HIPS (N=527)	KNEES (N=917)
Age in years, median (IQR)	73 (66-81)	73 (65-80)
Gender, n (%)		
Male	194 (37)	304 (33)
Female	333 (63)	613 (67)
Weight in kg, median (IQR)	83.0 (70.6-97.2)	88.9 (75.1-100)
BMI in kg/m^2, median (IQR)	30 (26.2-34.9)	32 (28-36)
Type of surgery, n (%)		
Primary	519 (98.5)	909 (99)
Revision	8 (1.5)	8 (1)
Operative side, n (%)		
Left	219 (42)	403 (44)
Right	308 (58)	514 (56)

IQR = Interquartile range

Results – Knee Arthroplasty

917 patients

Only **2 (0.2%)** used long-term opioids post-operatively

PROMs showed upwards trends across all domains

Improvement in anxiety and depression using EQ-5D-5L ($p<0.0001$)

Pain dramatically improved from 6 weeks ($p<0.0001$)

Oxford Knee Score showed significant median post-operative improvement of 11 points at 6 weeks, 19 at 1 year ($p<0.0001$)

Results – Hip Arthroplasty

527 patients

Zero patients using opioids at six weeks

Similar upwards improvement across all PROMS

Anxiety, depression and pain scores again showed significant improvement ($p<0.0001$)

Oxford Hip Score showed significant median post-operative improvement of 19 points at 6 weeks, 31 at 1 year ($p<0.0001$)

Table 2. Pre- and postoperative opiate use and patient Reported Outcome Measures for (PROMs).

IQR: interquartile range.
[1] 59 lost to follow up
[2] 180 lost to follow up
[3] 256 lost to follow up.
[a] Fisher's exact test
[b] Mann-Whitney U test

	Hips (n=527)	p-value	Knees (n=917)	p-value (comparison to pre-operative)
Opiate use, n (%)[a]				
pre-operative	187 (35)	-	232 (25)	-
6 weeks postoperative[1]	0	<0.0001*	2 (0.2)	<0.0001*
6 months postoperative[2]	0	<0.0001*	2 (0.2)	<0.0001*
1 year postoperative[3]	0	<0.0001*	2 (0.2)	<0.0001*
Oxford Hip / Knee Score total, median (IQR)[b]	12 (8-19)	-	16 (12-22)	-
pre-operative	31 (24-37)	<0.0001*	27 (21-33)	<0.0001*
6 weeks postoperative[1]	38 (31-44)	<0.0001*	34 (27-40)	<0.0001*
6 months postoperative[2]	44 (36-47)	<0.0001*	35 (27-43)	<0.0001*
1 year postoperative[3]				
EQ-5L-5D Health Questionnaire total, median (IQR)[b]				
pre-operative	65 (50-75)	-	70 (60-80)	-
6 weeks postoperative[1]	80 (70-90)	<0.0001*	80 (70-90)	<0.0001*
6 months postoperative[2]	80 (70-90)	<0.0001*	80 (70-90)	<0.0001*
1 year postoperative[3]	85 (75-90)	<0.0001*	80 (70-90)	<0.0001*

Discussion

- Patient education and multi-disciplinary approach to pain can achieve long-term opioid free recovery
- Patient outcomes not compromised
- Higher patient satisfaction than other studies
- Ongoing controversy about the use of opioids for chronic (non-cancer) related pains
- Arthroplasty surgery can be managed with simple analgesia from 6 weeks to 1 year post-operatively without compromising recovery

Conclusion / Questions ?

Joint arthroplasty can be managed with simple analgesia between 6 weeks to 1 year without compromising recovery

Patient education and expectation management plays an integral role

PROMs and long-term opioid data ? Part of ongoing study