

Clinical and Translational Research

Evaluation and risk assessment for persistent postsurgical pain after breast surgery: a prospective cohort study

B-CAPP (Breast CAncer surgery Postsurgical Pain) study: KKH data

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Aim

Persistent post-surgical pain (PPP) after breast surgery is associated with physical/psychological disability. Lack of knowledge of risk factors limit pre-emptive interventions. We aimed to identify independent risk factors associated with PPP.

Methodology

This prospective cohort study enrolled women scheduled for mastectomy or lumpectomy. Demographic, pain and psychological vulnerability, and experimental pain testing were recorded. PPP at 4 months is defined as pain at surgical site lasting >3months or interference with activities of daily living. Univariate and multivariable logistic regression analyses was used to identify potential factors.

Results

Of 104 patients analysed (111 enrolled, 7 loss-to-followup), 72(69.2%) developed PPP. Univariate and multivariable analyses are summarised in Table 1. AUC multivariable model is 0.763.

Conclusion

Preoperative non-breast site pain, concurrent breast reconstructive surgery, and high pain catastrophising were independent risk factors.

Table 1

Risk factors	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Age(years)	0.97[0.93-1.02]	
Race		
Chinese	Reference	
Malay	1.22[0.42-3.59]	
Indian	1.08[0.19-6.06]	
Others	0.52[0.14-1.91]	
BMI (kg.m ⁻²)	1.00[1.00-1.00]	
ASA status		
1	Reference	
2	1.55 [0.57 to 4.24]	
3	0.62 [0.03 to 11.28]	
Smoking	0.43 [0.06 to 3.19]	
Past medical history		
Hypertension	0.32[0.11-0.93]	
Diabetes	1.36[0.26-7.15]	
Anxiety	1.41[0.01-137.61]	
Depression	1.41[0.01-137.60]	
Prior chemotherapy	0.85[0.33-2.78]	
Preoperative pain (yes vs no)		
Breast	2.22[0.75-6.56]	
Other sites	8.15[1.80-36.97]	6.65[1.35-32.69]
Preoperative pain score (0-10)		
Breast	1.71[1.01-2.89]	
Other sites with movement	1.46[1.02-2.08]	
Lumpectomy (vs mastectomy)	0.41[0.17-0.97]	
Axillary clearance	1.03[0.42-2.53]	
Breast reconstruction	2.86[1.16-7.02]	4.25[1.53-11.79]
MTS positive	1.40[0.41-4.73]	
Average right-sided pain-pressure threshold	0.85[0.64-1.14]	
Perceived Stress Scale (total)	1.05[0.97-1.14]	
Pain Catastrophising Scale (≥21 vs <21)	9.00[1.99-40.69]	12.36[2.48-61.57]
Brief Symptom Inventory		
Somatization	1.16[1.03-1.29]	
Depression	1.12[0.99-1.27]	
General anxiety	1.18[0.99-1.41]	
Panic	1.29[1.04-1.59]	
General distress	1.06[1.01-1.11]	
Eysenck Personality Questionnaire		
Psychoticism	1.25[0.93-1.67]	
Extraversion	0.97[0.86-1.10]	
Neuroticism	1.26[1.09-1.46]	
Lie scale	0.90[0.79-1.02]	
48-hour analgesia (yes vs no)		
Paracetamol	4.14[1.67-10.25]	

Risk factors	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Morphine	2.60[0.95-7.12]	
Arcoxia	14.55[1.87-113.26]	
Tramadol	0.88[0.15-5.08]	
24-hour pain score		
Rest (0–10)	1.18[0.99-1.42]	
Movement (0–10)	1.24[1.04-1.46]	
48-hour pain score		
Rest (0–10)	1.41[1.11-1.79]	
Movement (0–10)	1.28[1.06-1.55]	

(300 words)