Johns Hopkins Personalized Pain Program: A Response to the Opioid Crisis

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Introduction

- The use of prescription opioids for pain management has created a nationwide public health crisis, and many of the prescriptions leading to opioid use disorder and death were initiated in the perioperative period.
- It has been estimated that the annual costs of chronic pain in the U.S. are over $560 billion.[1]
- Patients that attend interdisciplinary chronic pain clinics have been found to utilize emergency and primary care services less, resulting in lower long-term costs.[1]
- The Personalized Pain Program (PPP) was implemented at Johns Hopkins to care for surgical patients on chronic opioids across the perioperative period.

Objective

The authors hypothesized that a multidisciplinary approach to perioperative pain management would lead to a decrease in postoperative opioid consumption while reducing postoperative pain scores and improving functional outcomes.

Materials and Methods

Treatment Setting

- Patients on chronic preoperative opioids or at risk of chronic postoperative opioid use were invited to participate in the PPP starting 4 weeks prior to surgery or immediately after surgery.
- PPP providers included acute and chronic pain specialists and psychiatrists; the PPP had access to addiction medicine, physical medicine and rehabilitation, and integrative medicine.
- Patients were seen both inpatient postoperatively as well as outpatient in the ensuing months (Figure 1).
- Patients were educated on multimodal pain therapy and the risks of long-term opioid consumption use.

Data collection

- Data was collected from June 2017 to March 2020.
- N = 291 patient encounters with at least 2 PPP visits no more than 3 months apart.
- Opioid consumption (milligram morphine equivalents (MMEs)), pain severity and interference scores (via Brief Pain Inventory (BPI)), and physical and mental health functioning scores (via Short Form-12 (SF-12)) were collected at the first PPP clinic visit, and at monthly PPP postoperative follow-up visits.

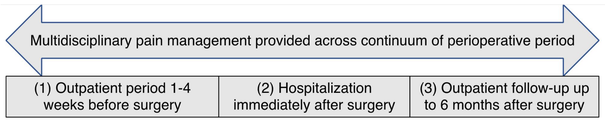

Figure 1: Concept Flow of PPP

	N=291 patients n	%
Age		
18-29	45	16
30-39	68	23
40-49	59	20
50-59	65	22
60+	54	19
Gender		
Female	156	54
Male	135	46
Race		
Caucasian	171	59
African American	102	35
Other	18	6
Marital status		
Single	122	42
Married	120	41
Separated/divorce/widowed	43	15
Other	6	2
Education		
High school or below	125	43
College	55	19
Professional or doctorate	30	10
Not reported	81	28
Employment status		
Employed	81	28
Unemployed	123	42
Disabled	46	16
Retired	35	12
Other	6	2
Insurance		
Private	171	59
Public	114	39
Self-pay or uninsured	6	2
On medications for opioid use disorder		
No	259	89
Yes	32	11
Surgery type		
Cardiac/Thoracic	22	7
Gastroenterology/General	49	17
Neurosurgery/Otolaryngology	28	10
Orthopedic/Trauma	107	37
Plastic/Vascular	16	5
No surgery	69	24
Surgery timeline		
Surgery before first visit	165	57
Surgery after first visit	57	19
No surgery	69	24

Table 1: Demographics and clinical characteristics of PPP Patients

	N=291 patients Mean	SD
Length of EOVs (days)	104	108
# of total visits	5	4
# of in-person visits	5	4

Table 2: Characteristics of PPP Treatment

Results

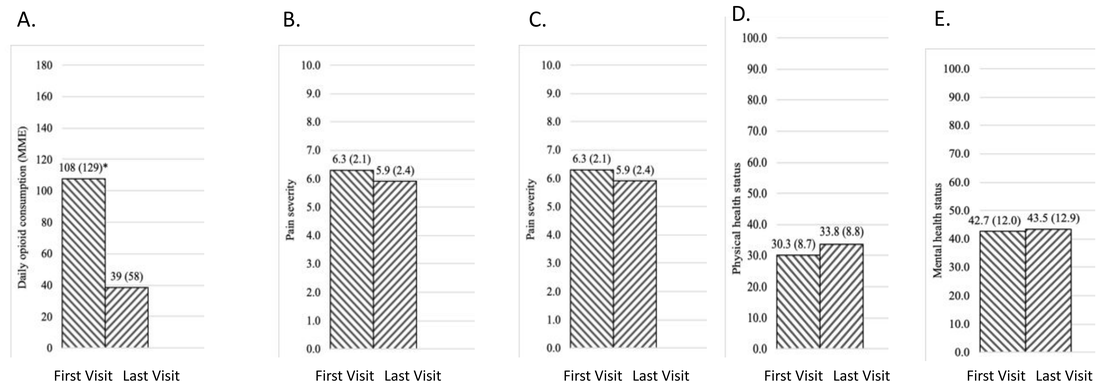

Figure 2: PPP Patient Outcomes. A. Opioid Consumption (MME); B: Pain Severity (BPI); C: Pain Interference (BPI); D: Physical Functioning (SF-12); E: Mental Health Functioning (SF-12); *average (SD)

- Relative to the first postoperative visit, the patients had significant reductions in daily opioid consumption (P<.001), pain severity, (P<.001), pain interference (P<.001), and improvements in physical health functional status (P<.001).
  - Daily opioid consumption decreased from an average of 108 MME to 39 MME.
  - Pain severity decreased from an average of 6.3 to an average of 5.9 out of 10.0.
  - Pain interference decreased from an average of 7.0 to an average of 6.1 out of 10.0.
  - Physical health increased from an average of 30.3 to an average of 33.8 out of 100.0.
- There was no significant improvement in mental health status.

Conclusions

- A multidisciplinary, comprehensive, and coordinated approach to perioperative pain management in chronic opioid users can decrease opioid requirements and decrease pain scores, while improving functional scores.
- The PPP, designed to address perioperative pain in an unprecedented manner, adds value for patients, the hospital, and the health system.
- The current study is limited by lack of a control group.
- Additional research is needed to compare MME usage with current standards of care, establish best timing of first consult in relation to surgery, and define factors that lead to improved pain outcomes.
- It may also be useful to evaluate cost effectiveness of the PPP.

References

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