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Commentary

Considerations of non-medical use of prescription opioids (NMUPO) in pediatric pain management

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Background

Since the 1990's there has been a significant increase in opioid prescribing and both medical and non-medical use of prescription opioids (NMUPO) with associated high rates of morbidity and mortality (Ling et al., 2011; Manchikanti et al., 2012a). This commentary will discuss NMUPO and considerations for pediatric pain management clinicians.

NMUPO is defined as "the taking of prescription drugs [opioids], whether obtained by prescription or otherwise, other than in the manner or for the reasons or time period prescribed, or by a person for whom the drug was not prescribed" (United Nations Office on Drugs and Crime [UNODC], 2011, p. 1). NMUPO ranges from recreational use to self-medication and is not necessarily associated with substance use disorders (Boyd & McCabe, 2008; Frese & Eiden, 2011).

The morbidity and mortality from NMUPO are significant and rising. In 2011, 29% of emergency department (ED) visits for drug-related misuse or abuse in the United States were due to NMUPO, with 25% requiring admission to hospital (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). Oxycodone, hydrocodone and methadone were the most common opioids identified (SAHMSA, 2013). NMUPO-related ED presentations increased by 132% from 2004 to 2011, with peak incidence in 18- to 20-year-olds; however, presentation rates remain elevated between 18 and 55 years of age, dispelling the view that NMUPO-related risk is isolated to youth (SAHMSA, 2013). Prescription opioids are the causative drug in 14% of ED presentations for suicide attempts in adolescents. Additionally, 46% of people presenting to an ED seeking referral to detox services are due to NMUPO (SAHMSA, 2013). Overdose deaths from prescription opioids (either alone or in combination with other drugs) have tripled in the United States in the last 20 years, being responsible for 16,651 deaths (74% unintentional, 17% suicide) in 2010 with highest incidence between 20 and 59 years of age, peaking between 40 and 49 years of age (Jones et al., 2013; Mack, 2013).

Sources of prescription opioids and NMUPO prevalence in adolescents

Opioid prescribing for children and adolescents is growing, although rates are low compared to adults. Fortuna et al. (2010) found a 45% increase in young people being prescribed controlled medications (i.e. opioids, stimulants and sedatives) in the United States over a 13 year period. Richardson et al.'s (2011) survey of opioid prescribing trends reported increasing rates of opioids prescribed for adolescents with musculoskeletal pain and headaches. They noted even higher prescribing rates for adolescents with comorbid mental health disorders or multiple pain conditions.

Adolescents commonly obtain prescription opioids from family or friends rather than illegal sources (UNODC, 2011; McCabe et al., 2012a). Ross-Durow et al. (2013) identified adolescents'

access to medications as a risk factor for misuse. They found 73% of adolescents prescribed controlled drugs in the previous 6 months had unsupervised access to them at home.

McCabe et al. (2012a,b) studied medical and non-medical use of opioids in senior high school students (mean age 18 years) in the United States. Prevalence of NMUPO ranged from 12.3 to 12.9%. Of concern, 70% of those who reported NMUPO co-ingested other drugs (McCabe et al., 2012b). Nakawaki and Crano's 2012 study of adolescents (*n* = 126,764) aged 12 to 17 years in the United States found persistent use of common illicit substances were the greatest predictor of NMUPO. Fischer et al. (2013) assessed prevalence of NMUPO in Canada and described rates of 15.5% in adolescents (secondary-school aged, *n* = 3266) and 5.9% in adults (over 18 years, *n* = 4023). Hibell et al. (2012) reviewed substance use among adolescents in 36 European countries (*n* = 100,000); with mean age 15.8 years and found rates of 7-8%. McCabe et al.'s 2014 longitudinal study (*n* = 27,268) examined 18- to 24-year-olds' patterns of NMUPO over time. There was increased likelihood of chronic patterns of NMUPO at ages 23 to 24 years when associated with multiple problematic substance use behaviors (i.e. binge drinking, marijuana use and non-medical use of other prescription drugs).

Motives for NMUPO

The most commonly reported motive for NMUPO in adolescents is self-medication of pain or insomnia, which may not relate to other misuse behaviors (Zacny & Lichtor, 2008; McCabe et al., 2013). Conversely, NMUPO for recreational reasons (e.g. to get high or experiment) is highly correlated with use of other drugs and binge drinking and associated with increased risk for substance use disorders (Young et al., 2012; McCabe et al., 2013). There is evidence that adolescents experiment with NMUPO rather than illicit drugs due to their availability and being socially acceptable. In addition, adolescents consider prescription drugs to be safer than illicit drugs because health professionals prescribe them, they are purchased from pharmacies, and they are used by family or friends (Compton & Volkow, 2006; Oliver et al., 2012).

Identifying vulnerable adolescents

UNODC (2011) and Young et al. (2012) found female gender increased risk of NMUPO. Veliz et al. (2013) reported greater risk in adolescents competing in high-injury sports (notably football and wrestling) while Young et al. (2011) identified adolescent girls who experienced sexual victimization having up to five-fold risk of NMUPO compared to peers, depending on assault severity.

There is minimal evidence of NMUPO or substance use disorders in adolescents with sickle cell disease or hemophilia; but, they may be at risk due to the unrelenting nature of their pain and its undertreatment because of perceived fears of addiction (Zempsky, 2010; Witkop et al., 2012). Significantly, there is some evidence that denying prescription opioids to youth whose pain symptoms are comorbid with substance use disorders increases their likelihood of self-medication and escalation to higher risk behaviors (Fibbi et al., 2012).

Risk assessment and harm reduction

A range of tools is available to assess risk (Oliver et al., 2012) when considering opioid prescription to adolescents. Two tools validated for adolescents, the CRAFFT Screening Tool for Adolescent Substance Abuse (Knight et al., 1999; Dhalla et al., 2011) and the Drug Abuse Screening Test, Short Form (DAST-10; Addiction Research Foundation, 1982), are recommended by McCabe et al. (2012c) to identify the subgroup at highest risk for substance use disorders and the subgroup who would benefit from pain management. Knight et al. (2007) found that adolescents preferred to self-screen using paper or computer-based tools versus face-to-face with a doctor or nurse; also self-screening had higher rates of honesty and reliability. Additionally, a detailed patient and family history should be obtained to determine comorbidities (i.e. depression, anxiety and other risk factors such as family history of substance use disorders; Frese & Eiden, 2011; Oliver et al., 2012).

Key to harm reduction is discussion about NMUPO, despite 50% of clinicians reporting they find this difficult (The National Center on Addiction and Substance Abuse [CASA], 2005). It is imperative to educate adolescents and their parents about safety and risks of opioids, danger of

combining opioids with other substances, diversion, safe storage, supervised access and disposal of unused opioids.

Striking a balance: pain relief and NMUPO

Although opioids have been shown to have some efficacy for adult neuropathic pain (Moulin et al., 2007) there is limited evidence of their usefulness for persistent non-cancer pain in all ages (Ling et al., 2011; Kotalik, 2012). Indeed, careful prescribing for acute pain and not prescribing opioids for persistent non-cancer pain in adolescents may be the most prudent strategy (UNODC, 2011; Kahan et al., 2012).

Safe prescribing and monitoring

Internationally, opioid prescribing guidelines have been produced by organizations such as The American Society of Interventional Pain Physicians (Manchikanti et al., 2012b,c). Furthermore, countries and regions have implemented recommendations to improve practice (Juurlink et al., 2013; Nuckols et al., 2014) and established prescription drug monitoring programs to track opioid prescribing and dispensing.

Urine drug testing (UDT) is used by clinicians prescribing opioids for adults with chronic pain. For optimal effect it is suggested that all patients are screened instead of only using UDT for at-risk patients (Heit & Gourlay, 2004). Peppin et al. (2012) summarize urine-screening recommendations for long-term opioids. There is little data on UDT for adolescents with chronic pain and some suggestion that it is being overlooked (Saroyan et al., 2011).

Opioid contracts or agreements are often mandated; however, ethical concerns about their usefulness have been raised (Payne et al., 2010). It is important to note that evidence for efficacy of opioid monitoring strategies is limited with research in this area evolving rapidly (Manchikanti et al., 2012b,c; Nuckols et al., 2014).

Suggested management for adolescents with chronic pain

All adolescents

- Anticipatory guidance about NMUPO
- Screening for risk of NMUPO

Parents/carers

- Anticipatory guidance about NMUPO

Adolescents and parents/carers

- Detailed patient and family history

Low risk individuals (<15 years, negative risk screening, no major untreated psychiatric disorder, no family history of substance use disorder)

- UDT (baseline, then at random intervals)
- Written opioid contract/treatment agreement
- If opioids prescribed: lowest possible dose and cautious titration
- Prescription monitoring
- Periodic reassessment of risk

Moderate to high risk individuals (>16 years, positive risk screening, history of depression/sexual victimization/psychiatric disorder, family history of substance use disorder)

- UDT (baseline, then at random intervals)
- Written opioid contract/treatment agreement
- Maximize non-opioids. If opioids prescribed: lowest possible dose and cautious titration
- Detailed prescription monitoring
- Monitor for withdrawal/overdose of opioids and other drugs/alcohol
- Frequent reviews with a low threshold for consultation/joint management with pain specialist/addiction specialist
- Periodic reassessment of risk

What to do if a patient is demonstrating NMUPO

Clinicians must pay attention to recognizing adolescents who develop substance use disorders. When substance use disorders are identified, advice should be sought from pain management and addiction specialists with referral to drug treatment programs for concurrent treatment. Rates of referrals to drug treatment programs are low, often delayed until adolescents are in crisis and via the criminal justice system, resulting in preventable and costly health and social problems (CASA, 2011, 2012). Review Oliver et al. (2012), Miotto et al.

(2012) and Chang and Compton (2013) for further details about how to manage pain in patients with concurrent substance use disorders.

Final messages

- 4 in 5 adolescents use opioids as prescribed.
- Up to 20% of adolescents report NMUPO.
- The motivation for most NMUPO in adolescents is pain relief.
- Access to opioids is a key risk factor.
- History of depression or sexual victimization increases the likelihood of NMUPO.
- NMUPO for non-pain reasons is linked to increased risk of substance use disorders.

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Useful resources

Australia

The Royal Australasian College of Physicians. Prescription opioid policy: improving management of chronic non-malignant pain and prevention of problems associated with prescription opioid use. Sydney, 2009. www.racp.edu.au/page/policy-and-advocacy/public-health-and-social-policy

Canada

National Advisory Committee on Prescription Drug Misuse. First do no harm: responding to Canada's prescription drug crisis. Ottawa, Canada: Canadian Centre on Substance Abuse, March 2013. www.ccsa.ca/resource%20library/canada-strategy-prescription-drug-misuse-report-en.pdf

National Pain Center, McMaster University. Opioid manager. http://nationalpaincentre.mcmaster.ca/opioidmanager/

UK

The British Pain Society. Opioids for persistent pain: good practice. London, January 2010. http://britishpainsociety.org/book_opioid_main.pdf

USA

Opioids special issue. Pain Physician, Official Journal of the American Society of Interventional Pain Physicians (ASIPP). 2012. http://painphysicianjournal.com/pastissue_vw.php?jcode=68

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