Published in final edited form as:

J Addict Med. 2011 December ; 5(4): 279–283. doi:10.1097/ADM.0b013e31821852a0.

Mandatory Naltrexone Treatment Prevents Relapse Among Opiate-Dependent Anesthesiologists Returning to Practice

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Abstract

Objective—Anesthesiologists with opioid use disorders are at high-risk for relapse. In 2005, the State of Florida impaired professionals monitoring program (PRN) implemented a policy whereby anesthesiologists referred for opiate use disorders were contractually obligated to take naltrexone for 2 years. Naltrexone ingestion was witnessed and verified via random urine drugs screens or administered via IM injection.

Method—Charts were reviewed for the 11 anesthesiologists who underwent mandated pharmacotherapy with naltrexone, as well as 11 anesthesiologists who began monitoring immediately prior to implementation of this policy.

Results—Eight out of 11 anesthesiologists who did not take naltrexone experienced a relapse on opiates. Only 1 out of 11 anesthesiologists experienced a relapse on opiates after taking naltrexone, while another relapsed on an inhalant (nitrous oxide). It is noteworthy that 5 of the 11 anesthesiologists who took naltrexone had relapsed prior to naltrexone treatment, and 7 of the 11 anesthesiologists who did not take naltrexone experienced multiple documented relapses. Only 1 of the 11 anesthesiologists who did not take naltrexone successfully returned to the practice of anesthesiology. This individual suffered primarily from alcohol dependence, and suspected opiate abuse was never verified. Others who attempted return to anesthesiology ($n = 7$) suffered a relapse. In comparison, 9 of the 11 anesthesiologists who took naltrexone have returned to the practice of anesthesiology without a relapse (as verified by continued random urine and hair testing).

Conclusion—Mandatory naltrexone treatment may provide anesthesiologists with an additional safeguard to successfully return to work.

Keywords

Impaired physician; Naltrexone; Relapse; Anesthesiologists; Opioid Dependence

Prescription opiate abuse and dependence are growing societal problems (Riggs, 2008). Physicians appear to be particularly at risk (Merlo & Gold, 2008), with anesthesiologists over-represented among those with opiate use disorders (Hughes, Storr, Brandenburg, et al., 1999; McAuliffe, Gold, Bajpai, et al., 2006). Many have hypothesized that easy access to

opiates in the workplace contributes to the high rates of substance use among anesthesiologists (Zacny & Galinkin, 1999; Baird & Morgan, 2000; Verghese, 2002), while others have demonstrated that anesthesiologists may experience secondhand exposure to opiates in the operating room (Gold, Melker, Dennis, et al., 2006; Merlo, Goldberger, Kolodner, et al., 2008; Wang, Li, Xu, et al., 2009), potentially sensitizing the natural reward pathways and creating a biological vulnerability to addictive disease. Regardless, opiate addiction presents a significant risk. Indeed, anesthesiologists have the highest addiction-related mortality risk and suicide rates among physicians (Lew, 1979; Alexander, Checkoway, Nagahama, et al., 2000). Opiate addiction among anesthesiologists also presents a significant public health concern.

Addicted physicians may put their patients at risk if practicing while impaired. As a result, most states now have a physician health program (PHP) to ensure that addicted physicians can access treatment while maintaining patient safety (DuPont, McLellan, Carr, et al., 2009). Participation in these programs typically involves a temporary voluntary withdrawal from practice, extensive treatment (typically at the residential or partial-hospitalization level), and long-term monitoring with weekly meetings and random urine drug screening. Research has demonstrated that this model is associated with much higher rates of success for participants than for members of the general population with the same degree of substance-related impairment (McLellan, Skipper, Campbell, et al., 2008; DuPont, McLellan, White, et al., 2009).

However, recovery rates for anesthesiologists have historically lagged behind those for physicians from other specialties. In fact, fewer than half of anesthesiology residents who attempt to return to anesthesiology following treatment for an opiate use disorder are successful (Menk, Baumgarten, Kingsley, et al., 1990; Collins, 2005), and up to 25% of anesthesiology residents who relapse on parenteral opioids die as a result of their relapse (Menk, et al., 1990). Due to the significant documented risk for opiate use-related morbidity and mortality, many in the anesthesiology community have suggested a 1-strike policy, whereby any anesthesiologist found to have an opioid use disorder should be encouraged to leave the field of anesthesiology (Berge, Seppala, & Lanier, 2008).

Yet, there are many negative consequences to this approach. First, physicians who genuinely enjoy the practice of anesthesiology may avoid seeking treatment for a substance use disorder if they fear their ability to practice will be lost forever. Second, training an anesthesiologist requires a significant amount of time, money, and effort. In effect, these resources are wasted any time a practitioner leaves the field. Finally, if anesthesiologists who leave the field wish to practice medicine, they must retrain in another specialty and accept the significant financial and practical consequences of doing so. As a result, there exists a need for additional solutions to the problem of opiate addiction among anesthesiologists.

Beginning in 2005, the State of Florida physician health program [(i.e., the Professionals Resource Network (PRN)] implemented a policy (see Table 1) whereby anesthesiologists referred for opiate use disorders could only return to the practice of anesthesiology following successful addiction treatment if they agreed to pharmacotherapy with naltrexone for a minimum of 2 years. The agreement became an official requirement of their monitoring contract. Naltrexone is an opioid antagonist medication that blocks access to the endogenous opioid receptors (Volpicelli, Volpicelli, & O'Brien, 1995). It prevents individuals from experiencing the euphoric effects of opiate drugs, and can be administered orally in once-daily tablet form or via intramuscular injection on a monthly basis. Potential side effects include nausea, headaches, dizziness, fatigue, insomnia, anxiety/nervousness, sleepiness, and hepatotoxicity, as well as site reaction (injectable formulation only).

Medication adherence may be particularly problematic with the oral formulation (Litten & Allen, 1999), though not with the injectable formulation (Foster, Brewer, & Steele, 2003; Hulse, O'Neil, Hatton, et al., 2003). As a result, the PRN policy mandated that ingestion of oral naltrexone be witnessed, with a log maintained. Physicians also underwent random urine drug screens to test for naltrexone as part of their monitoring. Those electing administration of injectable naltrexone by a physician were not required to undergo urine testing for naltrexone.

The purpose of the present study was to determine the effect of this mandatory naltrexone treatment for anesthesiologists with opiate use disorders who were enrolled in a physician health program. Specifically, we hypothesized that anesthesiologists who received naltrexone pharmacotherapy would: 1) have lower rates of relapse to opiate use, 2) display longer periods of abstinence from opiates, and 3) have higher rates of return-to-work in anesthesiology.

Methods

Procedure

All procedures were approved by the University of Florida Institutional Review Board, as well as the state monitoring program. Monitoring program staff queried the clinical database to identify all anesthesiologists and anesthesiology residents (hereafter referred to as "anesthesiologists") who had been referred to the program for an opiate use disorder. Charts were pulled by program staff for review by the researchers. Working backward chronologically, the first author identified charts for anesthesiologists who had signed a monitoring contract after implementation of the naltrexone policy in 2005, as well as an equal number of charts for anesthesiologists who had signed their contracts immediately prior to the implementation of the policy. Charts were reviewed extensively to assess for: 1) verification of substance use disorder diagnosis, 2) any use of naltrexone (whether mandated or voluntary), 3) instances of relapse on opiates or other substances, 4) length of time before relapse, 5) return to work (whether in anesthesiology or another field), and 6) amount of time working successfully in anesthesiology without a relapse on opiates.

Sample

Charts were reviewed for 18 anesthesiologists and 4 anesthesiology residents ($N = 22$; 95% male) who were under a monitoring contract due to an opiate use disorder. This included 11 charts for anesthesiologists who had taken naltrexone, as well as 11 charts for those who had not. It should be noted that anesthesiologists in this study received either oral or injectable naltrexone, although at the time of the study, only the oral form was FDA-approved for the treatment of opioid dependence. The IM formulation has since received FDA approval for the treatment of opioid dependence as well. The sample ranged in age from 29–56 years ($M = 41.0$ years, $SD = 7.0$). There were no group differences in age or gender.

Results

As seen in Table 2, anesthesiologists who took naltrexone were less likely to experience a relapse on opiates (as verified by random urine drug screening), and more likely to return to the practice of anesthesiology. It is noteworthy that the one anesthesiologist who relapsed on opiates despite naltrexone treatment did so after his wife passed away. According to the chart notes, he admitted that he "didn't even get high." One other anesthesiologist taking naltrexone did relapse on an inhalant (nitrous oxide). In addition, 5 of the 11 anesthesiologists who took naltrexone had previously experienced a documented relapse on opiates or other drugs prior to beginning treatment with naltrexone.

Figure 1 shows a graphical representation of the results. Regarding the group that did not take naltrexone, it is significant that only 3 of the 11 did not experience a relapse on opiates. This included one anesthesiologist who left the field of anesthesiology immediately after referral to the monitoring program to become a medical consultant, one whose chart notes indicate that he reported being “terrified” of returning to anesthesiology, and instead applied for Disability benefits then retrained in Addiction Medicine, and one physician who was a resident at the time and successfully returned to his residency. Further review of his chart indicated that his primary diagnosis was actually Alcohol Dependence, and his suspected Opiate Abuse was never verified with a positive urine screen. Finally, one anesthesiologist who did not take naltrexone successfully began practicing Pain Medicine without a relapse. Like the naltrexone-treated group, these anesthesiologists had significant relapse histories. Indeed 7 of the 11 anesthesiologists who did not take naltrexone had multiple documented relapses on opiates or other drugs.

Thus far, the anesthesiologists who took naltrexone have maintained abstinence from opiates, as verified by urine drug screening, for 3.36 years ($SD = 1.57$, range = 0 to 5 or more years). Those who have remained relapse-free have each completed at least 2.5 years of monitoring without incident, while the two physicians who experienced a relapse (one on opiates, one on nitrous oxide), did so within the first two years of monitoring. Despite the truncated length of follow-up for the naltrexone group, the average period of opiate abstinence for the naltrexone group was significantly longer than the average period of opiate abstinence for the no-naltrexone group ($M = 1.36$ years $SD = 2.11$, range = 0 to 7 years or more (see Table 2). Seven of the 8 anesthesiologists in the no-naltrexone group experienced a relapse (six on opiates plus or minus other drugs, and one on cocaine) within the first two years of their monitoring. The final anesthesiologist’s relapse was discovered during his third year of monitoring.

Discussion

The results of this study strongly suggest that mandated naltrexone treatment for anesthesiologists returning to practice serves as a powerful aid in maintaining sobriety and employment in their chosen profession. The naltrexone group was less likely to experience a relapse, more likely to return to successful practice of anesthesiology, and achieved more opiate-free years of work in their field. Despite the small sample size of this study, these effects all achieved statistical significance.

Although an FDA-approved treatment for opioid dependence since 1983, naltrexone has remained largely absent in this role due mainly to patient noncompliance (Minozzi, Amato, Vecchi, et al., 2006). In theory, it is a near-perfect medication for prevention of opioid relapse, effectively blocking euphoria should a patient attempt to achieve an opiate “high.” In practice, however, naltrexone by itself offers nothing in the way of easing cravings or physical withdrawal symptoms. Thus, without some external incentive to take it, naltrexone adherence remains a significant problem for many patients (Kleber, 1987). Indeed, the voluntary decision to take naltrexone is not much different from the voluntary decision to *not* abuse opiates. Absent external motivation for compliance, naltrexone merely offers patients a brief “waiting period” which can help eliminate the truly impulsive relapse. For most patients, this small benefit is outweighed by the inconvenience, cost, and risk of side effects involved in taking the drug. However, in patients where medication compliance is associated with important contingencies, naltrexone treatment may have profound effects.

The present study illuminates an exciting application for naltrexone treatment with the potential to positively impact the lives of certain individuals suffering from opioid dependence. Specifically, anesthesiologists being treated or monitored for opioid

dependence represent a unique population that is especially well-suited for mandated use of the drug. This is due to both the high relapse risk in the practice of anesthesiology (Domino, Hornbein, Polissar, et al., 2005), and to the inherent salience of their external motivation (i.e. ability to continue to practice their chosen profession). These data suggest a dramatically improved outcome for those anesthesiologists returning to work in their field who take naltrexone. At a minimum, pharmacotherapy with naltrexone may be a valuable addition to a comprehensive treatment/monitoring contract implemented by physician health programs. Mandatory naltrexone treatment may provide anesthesiologists recovering from an opiate use disorder with an additional safeguard to successfully return to work in anesthesiology.

If replicated and/or confirmed in larger studies, the benefits suggested in this study would likely lead to mandatory naltrexone becoming a more universal component of physician health programs. With such policies in place, the concept of “one strike” may need to be revisited entirely (Berge, et al., 2008). Additionally, these data may generalize to other similar groups such as nurse anesthetists, retail pharmacists, or pain management physicians. In the right context, mandatory naltrexone treatment may have similar benefit in a variety of other professions, or even non-professionals with the ability to have meaningful external motivation to maintain medication compliance (Washton, Gold, & Pottash, 1984). The implementation of widespread mandated-naltrexone policies does raise potential ethical concerns, such as consideration of whether those with absolute or relative contraindications to taking naltrexone (e.g. active hepatic disease) should be excluded from receiving the benefits of compliance (e.g., ability to return to work) that are offered to those who comply with treatment. These issues will need to be debated and discussed further.

Limitations

The results of the present study should be interpreted within the context of some limitations. First, the study sample was quite small, and future studies with larger samples are needed to replicate the findings. However, the fact that clinically- and statistically-significant results were obtained with such a small sample suggests the finding is quite robust. Second, the use of a retrospective chart review design was not ideal, and future studies should utilize prospective research methods if possible. Third, the use of a historical control group, while preferred for ethical reasons, presented some challenges. We were unable to positively demonstrate that the results were not affected by another environmental change that may have occurred near the time of the new policy implementation. Finally, due to the recency of the policy implementation, we had a more limited length of follow-up for the anesthesiologists who received naltrexone (i.e., only 4 of the 11 have completed their 5-year follow-up). Despite this, it is noteworthy that the average period of observed opiate abstinence was actually greater for the group that received naltrexone than for the group that did not receive naltrexone. In addition, all of the anesthesiologists in the naltrexone group have been followed longer than the average opiate-free period for the no-naltrexone group (i.e., at least 2 years, compared to the average of 1.36 years opiate-free for the no-naltrexone group).

Conclusions

In a small sample of anesthesiologists with opioid use disorders, the present study demonstrated markedly improved outcomes for those participants required to take naltrexone as a condition of return to work in anesthesiology, and as part of a comprehensive monitoring contract. Though preliminary, the findings are exciting with respect to their potential impact, and are robust enough for other state physician health programs to seriously reconsider revising their own existing policies. Since the vast majority of state PHPs do not utilize this policy (and many discourage return to anesthesiology altogether), consideration should be given to widespread implementation of mandated-

naltrexone treatment policies. These findings may generalize to other similar professions as well. Of course, future research is needed to replicate these findings on a larger scale. Further prospective studies involving representative samples and randomized group assignments are needed.

Acknowledgments

Funding: This research was supported by the Professionals Resource Network, Inc., an integral arm of the Florida Medical Association. Dr. Merlo was supported in part by NIDA training grant T32-DA07313-10 (PI= Cottler).

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Figure 1.
Group differences in outcome

Table 1

Naltrexone policy for anesthesiologists

Naltrexone dosing options	<ul style="list-style-type: none"> • PO: 50mg, 5 days per week • PO: 100mg/100mg/150mg, 3 days per week • IM: 380mg monthly
Naltrexone ingestion protocol	<ul style="list-style-type: none"> • Oral ingestion must be witnessed by employer/spouse with log maintained and signed • Injection log maintained and signed by administering physician
Random urine testing to confirm presence of naltrexone (oral ingestion group only)	<ul style="list-style-type: none"> • Once per week for 6 months • Every 2 weeks for 6 months • Monthly for second year • Any naltrexone-negative test re-starts protocol

Table 2

Group differences among anesthesiologists who did or did not take naltrexone

	Naltrexone Group (<i>M</i> or %)	No Naltrexone Group (<i>M</i> or %)	<i>t</i> or χ^2
Male gender	100%	95%	<i>ns</i>
Age	41.5	40.5	<i>ns</i>
Opiate relapse	9.1%	72.7%	9.21**
Return to Work in Anesthesiology	81.8%	9.1%	11.73***
Years Opiate-Free in Anesthesiology	3.36	1.36	2.52*

Note:

*
 $p < .05$,**
 $p < .01$,***
 $p < .001$