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The Myth of Morphine Equivalency

There are many reasons for arguing against applying Morphine Equivalency (ME) as a guideline in opioid prescribing. The basis for the argument to limit opioid prescribing based on ME is fundamentally flawed.

The Statistics Regarding Unintentional Prescription Opioid Related Deaths

Because statistics regarding unintentional prescription opioid related deaths suggest that such deaths are higher in patients prescribed greater than “90 ME,” the simplistic conclusion was made to use this number as a guideline. However, there are many variables that contribute to overdose death that superimpose on this conclusion.

Most unintentional prescription opioid related deaths are associated with polypharmacy, with other drugs and medications that interact with the opioids making the the opioid’s relative contribution to the death impossible to confirm.

Other Variables Contributing to Unintentional Prescription Opioid Related Deaths

Additionally, patients prescribed higher opioid doses are likely to be have other medical conditions that contribute to risk of overdose. This is a variable that is not taken into account in the statistics, one that could substantially alter any conclusions to be applied to practice guidelines.

Furthermore, the duration of time which patients were taking their opioid was not evaluated in establishing these statistics, and therefore the contribution of opioid tolerance was not considered as a variable. Again, without evaluating this variable, the conclusions are again flawed and it would be inappropriate to make recommendations based on such flawed conclusions.

The Measure of Morphine Equivalency

There is no consensus in the medical literature or amongst medical experts as to what morphine equivalency should be applied to the various opioids currently prescribed. In fact, a 2015 study that evaluated opioid ME conversion methods amongst physicians, pharmacists, and nurse practitioners/physician assistants showed that there were huge differences in calculated ME of five of the most commonly prescribed opioids amongst the clinicians. The authors of the study concluded “no universal method exists that allows each of the five studied opioids to be accurately and consistently converted to another opioid (i.e., morphine).”

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In addition, a review of morphine equivalency charts available in the literature including text books, publications and internet web sites show a wide range of ME for opioids, with no established standard of accuracy.

Essentially, the number “90 ME” is essentially meaningless since there is no consensus of how it is defined or calculated. Therefore the unintentional prescription opioid related deaths statistics based on ME are inherently flawed as are any prescribing recommendations based on ME.

Individual Responses to Opioids

Ultimately, the myth of morphine equivalency is evident because each individual responds differently to different opioids or even the same opioid at different times.

Different patients have different pain sensitivities and pain tolerances that affect their need for analgesic relief, important variables that would affect how much opioid analgesic would be required. It has been shown that there are genetic differences in opioid dosage requirements from one individual to another.

Patients differ in their response to an individual opioid based on many factors including their size and weight, how well they absorb the opioid from their g.i. tract and their genetic variants in how they metabolize the opioid. In the same individual at different times, the presence of other medications or even foods may affect how the individual metabolizes the opioid and therefore affect how the patient responds to the opioid.

The presence of other medical conditions is another variable that affects a patient’s response to an opioid.

Analgesic Benefit versus Safety

Finally, the concept of morphine equivalence is based on analgesic benefit. But the safety of an opioid is not based on analgesic benefit but on the opioid’s impact on respiratory suppression and likely on cognitive impairment. There are no studies that allow for establishing a morphine equivalence for these properties of an opioid and these are the properties that would most impact patient safety.

Conclusion

To conclude, the practice of assigning a specific “morphine equivalence” as a prescribing guideline is fundamentally flawed and should not be put into practice as a means of limiting prescribing or defining risk for unintentional opioid related death.

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