Prevalence and Reasons for Premature Replacement of Fentanyl-TTS in Stationary Patients at St. Clara's Hospital

Master Thesis

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Abstract

Background: Fentanyl-TTS (transdermal therapeutic system, patch) is indicated as opioid against chronic moderate to severe pain (e.g. cancer, end of life). The manufacturer's recommendation for the fentanyl-TTS replacement is 72 h. Clinical experience and literature indicate that a premature replacement after 48 h may be required for some patients. However, prevalence and reasons for this practice were not systematically investigated in the literature.

Objective: The goal of this study is to assess the prescribing habits of and the reasons for premature replacement of fentanyl-TTS for stationary patients at St. Clara's Hospital in Basel.

Methods: Data of stationary patients with a prescription of Durogesic® Matrix TTS from 1.1.2011 to 31.1.2015 were extracted from the electronic medical database Phoenix. A questionnaire for physicians, nurses and pharmacists was developed in order to gather personal experience with fentanyl-TTS and the prevalence and reasons for premature replacement of the patch.

Results: A list with 3514 patient cases was generated by the IT department of St. Clara's Hospital. A selection of 739 cases were analysed corresponding to 2250 fentanyl-TTS, ranging from 6 to 500 µg/h. Dosing interval shorter than 72 h was calculated for 30.5 % of the TTS. Most of the premature replacements were justified by technical reasons. A total of 5 % of the TTS (3.9 % of the cases, N = 739) were prescribed & dispensed with a dosing interval of 48 h. These cases were significant younger than the others (61.9 y vs 71.9 y, $p < 0.001$) and required significant higher dosages of TTS (108.4 µg/h vs 44.2 µg/h, $p < 0.001$) and of rescue medication (273.1 mg vs 39.5 mg oral morphine equivalent in the first 24 h of the patch application, $p < 0.001$). There was no apparent reason (drug-drug interactions (DDI)) for a premature replacement in the co-medication. The physicians, nurses and pharmacists (N = 70) mentioned "pain on the third day" (41.4 %) and "poor skin adhesion" (31.4 %) as the main reasons for premature replacement.

Conclusion: The prevalence of premature replacement of fentanyl-TTS was high with almost one third of all administered patches. A prescribed & dispensed dosing interval of 48 h was seldom but relevant. The patients were younger and required elevated dosages of fentanyl demonstrating not-well controlled pain relief. There was apparently no rational reason for premature replacement at St. Clara's Hospital, i.e. DDI or poor skin adhesion. The decisions for a premature replacement seem to proceed from physician's experience. For a rational and effective administration of fentanyl-TTS, guidelines for the exact procedure could be helpful. Further it would be interesting to survey younger patients with high dosages of fentanyl-TTS and to interview the physicians who prescribed a dosing interval of 48 h in order to gather their personal reasons.