

## **Trends in prescribing of NSAIDs in primary care in patients with and without CVD: an observational database study**

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### **Background**

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used to treat pain, but have potentially serious side effects when prescribed in patients with cardiovascular disease (CVD). The MHRA and NICE issued directives between 2004 and 2008 relating to their use in patients with CVD, which stipulated that NSAIDs, especially Cox-2's, should be used with caution in CVD patients to prevent potential adverse events. Our aim was to determine trends in NSAIDs prescribing from 2002-2010 in patients with and without CVD and ascertain if patterns of prescribing changed following the issuance of the MHRA/NICE guidance.

### **Methods**

This was an observational database study of patients aged  $\geq 18$  undertaken in 11 practices contributing to the Consultations in Primary Care Archive (2002-2010). All NSAIDs were grouped into three categories (basic, Cox-2 and topical NSAIDs). Study duration was divided into quarterly time periods, on a seasonal basis from 1<sup>st</sup> quarter 2002 to 4<sup>th</sup> quarter 2010. Within each quarterly time period, patients with and without CVD were distinguished using pre-defined Read Codes for CVD and the number of patients receiving each category of NSAIDs was determined. Quarterly prescription prevalence of NSAIDs groups over the study period was determined separately in patients with and without CVD. Prescribing trends were analysed using joinpoint regression to determine any significant changes. Changes in prescribing in relation to the five major pieces of national guidance (issued in 2004 quarter 4 (2004q4), 2005q1, 2005q3, 2006q4 and 2008q1) were assessed.

### **Results**

In the beginning of study period, higher prescription prevalence in each NSAIDs category was seen in patients with CVD, compared to that in patient without CVD. In both patient groups, the use of basic NSAIDs overall showed a decreasing trend (CVD: 774 [per 10,000] in 2002q1 to 245 in 2010q4; non-CVD 643 to 467), although the dropping scale was greater in patients with CVD. The use of topical NSAIDs,

however, showed a continuously increasing trend over the study period in both patient groups (CVD: 115 [per 10,000] in 2002q1 to 270 in 2010q4; non-CVD 108 to 242). In both patient groups, following an increase in prevalence between 2002q1 and 2004q3, the prescription of Cox-2 fell sharply during 2004q3 to 2005q1 (CVD: 401 [per 10,000] to 111; non-CVD: 237 to 99) before stabilising around 50 per 10,000.

### Conclusion

Despite guidelines and a trend toward decreased prescribing, the use of potentially harmful NSAIDs continued in patients with CVD. The MHRA directives had similar effects on both patient groups such that Cox-2 use became very infrequent, and basic NSAIDs use decreased for both. Further advice appears to be needed regarding the correct use of NSAIDs since CVD patients might still be using them inappropriately, and non-CVD patients, who might benefit, have had their use inappropriately restricted.