

P173

P173 -Thrombolytic use in tunnelled haemodialysis catheters post implementation of Citra-Lock™ S catheter locking solution.

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Introduction: Catheter locking solutions are required to maintain patency and prevent catheter related bacteraemias of haemodialysis lines. Whilst the benefits of catheter locking solutions are recognised, no specific product has been established as optimal choice¹. There are also concerns regarding the development of antimicrobial resistance and the inadvertent infusion of high concentrate citrate². Following an escalation in line occlusions requiring repeated thrombolytic therapy and numbers of patients requiring unlicensed gentamicin + heparin (GH) line locks in order to maintain line patency, our dialysis units undertook a switch of all tunnelled haemodialysis lines (Tesio®) from Taurolock Hep 500™ to Citra-Lock™ S 46.7% (trisodium citrate) as our first-line locking agent.

Method: Thrombolytic usage (Actilyse Cathflo® 2mg administered as per product licence) was audited 12 weeks pre and post Citra-Lock™ implementation to evaluate the success of switching in terms of maintaining line patency. Citra-Lock™ and Actilyse Cathflo® administration data were extracted from electronic prescribing records between 28/02/2018 and 17/08/2018 (switch date 23/05/18) for two of our dialysis units. Satellite units are not yet using electronic prescribing and were therefore excluded from this audit.

Results: At the time of switching 57 Tesio® lines were in use; all were switched from their current line locking solution to Citra-Lock™. Over the 24 week period 35 lines required thrombolytic treatment at least once: 16 lines (28%) pre and 25 post (44%) Citra-Lock™ switch. There were 33 Actilyse Cathflo® doses administered in the 12 weeks pre switch compared to 80 doses in the 12 weeks post switch, a 142.4% increase in thrombolytic usage. The total number of lines (n=57) in situ remained constant for the audit duration.

Weekly thrombolytic usage peaked approximately 8 weeks post Citra-Lock™ implementation (10 doses administered in week 8 compared to a pre-switch weekly average of 2.75 doses); this appeared to be returning to pre-switch levels at the end of the data collection period (4 doses given in week 12 post-switch). Lines inserted post Citra-Lock™ implementation required less thrombolytic treatment than those inserted prior to switching. Of the 14 lines inserted after the switch date, n=1 required one dose of thrombolytic. Overall thrombolytic usage decreased compared to the same 24 week period the previous year: 144 doses (2017) vs 113 doses (2018), a decrease of 21.5%.

Discussion: There was a substantial increase in thrombolytic usage post Citra-Lock™ implementation. However this appeared to be returning to pre-switch levels on completion of data collection. An extensive literature search suggests Citra-Lock™ is comparable to other catheter locking solutions in terms of maintenance of line patency and prevention of line associated bacteraemias. A possible hypothesis for increased thrombolytic usage is the breakdown of biofilm following removal of a heparin based lock, suggesting patency would improve over time once sufficient biofilm breakdown has occurred. This has been reported anecdotally by other dialysis centres.

From this experience, a gradual implementation of Citra-Lock™ should be considered. Using Citra-Lock™ to lock only newly inserted lines – i.e. those never previously exposed to heparin products – may avoid some line patency issues.