Administration of Subcutaneous Monoclonal Antibodies in Patients With Cancer
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Monoclonal antibodies (mAbs) represent major advances in the treatment of several types of cancer, and they have significantly improved patient survival with fewer side effects. Traditionally administered by the IV route, mAbs used in cancer treatment until 2013 were administered by infusion for 30 minutes to four hours at doses based on body surface area. However, the treatment of other chronic diseases has demonstrated the possibility of subcutaneous (SC) administration of mAbs (Jackisch, Müller, Maintz, Hell, & Ataseven, 2014; Leveque, 2014).

This route of administration has become attractive for use in cancer treatment because of its potential to eliminate the risks of venipuncture and reduce treatment time and costs (Jackisch et al., 2014). However, when changing the route of administration, the limitations of the SC tissue, particularly those related to volume, need to be considered. The SC tissue is composed of an extracellular matrix that maintains the structure of the skin and regulates the flow of fluids. Volumes exceeding 3 ml increase local pressure, distort the matrix, and cause pain (Arthur, 2015). To overcome the volume limits for bolus injection, SC formulations should contain hyaluronidase as an excipient.

SC administration of alemtuzumab, trastuzumab, and rituximab presented therapeutic efficacy with similar safety profiles compared to their respective IV formulations, except for the higher prevalence of local adverse events following SC administration.

SC mAbs require slow administration (no less than five minutes), and the injection site should be changed at each cycle. Patient guidelines should include information about expected adverse effects, signs or symptoms of side effects requiring emergency care, and how to reduce potential discomfort caused by the injection.

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