A COMPARISON OF THE TRADITIONAL WATER-BATH VS. DRY THAWING METHOD FOR THAWING CRYOPRESERVED PERIPHERAL STEM CELL COMPONENTS WITH A GOAL OF REDUCING THE CONTAMINATION RISKS

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The thawing of cryopreserved products has traditionally been done using a water-bath. The potential contamination risks involved with thawing cryopreserved stem cell products are always a concern. A safer, more standardized method of thawing cryopreserved products while reducing the contamination risk associated with water-baths was investigated. A comparison study was performed using the Equitherm Model 299-733 water-bath and the Cytotherm® Model D1 Dry Plasma Thawing unit. Two equivalent cryopreserved bags from each of nine peripheral stem cell collections were thawed using both water-bath and dry thawing methods. Bag volumes, storage, cell concentrations, initial product temperature and initial equipment temperature were identical. Measured parameters included post-thaw cell viability, product temperature, Lactate Dehydrogenase (LDH) levels and temperature recovery time of the equipment. All products were placed into an over-wrap bag. Viabilities found using each method were unremarkable with a variation range of less than 5% and an average variation of less than 1%. The differences noted were: 1) the products thawed in the water-bath had a temperature range of –2.0°C to 24.4°C post-thaw versus a temperature range of 6.0°C to 13.6°C following dry thawing method, 2) LDH levels of products thawed in the water-bath had LDH levels averaging 37.5% higher with a range of 5.8% to 87.8% higher than dry thawing method, 3) temperature recovery of the water-bath to desired temperature averaged 8.9 minutes compared to 4 minutes using the dry thawing unit. After performing this comparison, it was observed that the dry thawing method may have benefits over the traditional water-bath method. The benefits of the dry thawing method include: 1) the reduced risk of product contamination, 2) lower LDH levels on the thawed products which may indicate less cell destruction or lysis, 3) a consistent post-thaw temperature of the product ensuring that the product is not over-warmed or under-thawed, 4) faster temperature recovery of the equipment following each thaw allowing for a consistent starting temperature when performing multiple thaw, 5) elimination of the need to hand manipulate the product during the thawing process, 6) lastly, the dry thawing unit was very portable with no water to maintain.

RIGOROUS PROTOCOLS USING ALEMTUZUMAB TO T CELL DEPLETE STEM CELL PRODUCTS

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The therapeutic effect of allogeneic peripheral stem cell transplantation (alloPSCT) is related to an immune-mediated graft-versus-tumor (GVT) effect. However, alloPSCT is limited by T-cell mediated graft-versus-host disease(GVHD). Approaches used to treat or prevent GVHD include in vitro or in vivo purging of T cells using monoclonal antibodies such as Alemtuzumab, which is directed against CD52 on B and T lymphocytes, monocytes, and some dendritic cells (DCs). Alemtuzumab has been injected systemically to treat established GVHD, and ex vivo purging by the addition Alemtuzumab to a SCP, shaking for 15 minutes and infusion is also purging. T-cell depletion with Alemtuzumab infusion is an effective method to treat GVHD but is also associated with relapse and infectious disease. Ex vivo purging by the addition Alemtuzumab to a SCP, shaking for 15 minutes and infusion is also effective. However, the efficacy of this T cell purging protocol can not be assessed and potentially results Alemtuzumab infusion. The present study examined the effect of Alemtuzumab co-incubation on cellular subsets and the mechanism of purging i.e. antibody-dependent cellular cytotoxicity (ADCC) vs. antibody-complement toxicity. Our studies revealed that cellular concentration is critical