Technologists Poster Session 2

Tuesday October 13, 2009 08:00h - 09:30h
Room: Hall 117

TP049 09:09h - 09:12h

A software for automatic calculation of red cell volume and plasma volume by isotopic diluiton method

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Introduction: A nuclear medicine study is the gold standard for blood volume measurement. Blood volume studies using the indicator dilution technique and radioactive tracers have been performed in nuclear medicine departments for over 50 years. The calculation of red cell volume and plasma volume are not very complex but annoying and time-consuming. **Objective**: The aim of this study is to develop a computing facility to automatically calculate the red cell volume and plasma volume. **Materials and methods**: the equations used in the calculations are RCV = S R Vs Hv / B PV = BV - RCV BV = RCV / (f Hv) VP = S R V_S / P_0 BV = PV / (1 - H_b) RCV = BV - PV Predicted mean normal red cell volume and plasma volume by The Espert Panel of Radionuclides of the International Council for Standardization in Haematology (ICSH): For males: RCV = (1486 x S) - 825 PV = 1578 x S For females: RCV = (1.06 x age) + (822 x S) PV = 1395 x S S = surface area (m^2) S = $h^{0.425}$ x $w^{0.725}$ x 0.007184 For developing a software incorporating these calculations we have used Visual Basic 6.0 and Visual Studio Installer. **Results**: We have developed two forms for easy calculation of red cell volume and plasma volume. This forms relie on a database to store, manage and retrieve the data of red cell volume and plasma volume studies. Moreover the form offers the possibility of printing a detailed report of each study. These forms are included in a software called Nucleolab, which is freely available at http://serfa.radiofarmacia.org/?m=27 **Conclusion**: The software we have developed has an easy-to-use interface, that makes the calculation complexity of red cell volume and plasma volume completely hidden for the user, saving you the time that you previously spent on these laborious calculations and reducing the risk of error.

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