Biophysical Study on the Interaction of Dexmedetomidine and Serum Protein

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SUMMARY. For understanding the pharmacology of dexmedetomidine, the binding mechanism of dexmedetomidine to human serum albumin was probed by fluorescence and calorimetric approaches. The number of binding sites and binding constant were determined to be 1.07 and $4.90 \times 10^5$ M$^{-1}$ at 295 K. It was found that the fluorescence quenching was in static mode and the binding force was a hydrophobic one with a binding distance of 2.35 nm. Furthermore, circular dichroism and Fourier transform infrared spectral results indicated that the secondary structure of protein was changed in presence of dexmedetomidine, implying high level of dexmedetomidine in plasma was potentially poisonous.

KEY WORDS: Binding property, Calorimetry, Dexmedetomidine, Serum albumin, Spectroscopy.

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