

Aim of the study: The incidence of children developing recurrent sacrococcygeal teratoma (SCT) is 2-35%. Serum alpha-fetoprotein (AFP) is often used as a tumor marker for malignant recurrences of SCT and could potentially be used during routine follow-up after SCT resection. However, the diagnostic accuracy of serum AFP levels during follow-up has not been well established. Therefore, we aimed to systematically review the diagnostic accuracy of serum AFP levels in recurrent SCT.

Methods: We queried Search Premier, COCHRANE Library, EMCARE, EMBASE, PubMed, ScienceDirect and Web of Science databases to identify studies regarding patients with sacrococcygeal teratoma with follow-up after resection with serum AFP levels. We estimated sensitivity and specificity of serum AFP levels.

Main results: Fifteen studies (613 patients, 121 recurrences) were included and these mainly described serum AFP levels in patients with recurrent SCT (n=111); 83 (75%) patients with recurrent SCT had elevated serum AFP levels. A subgroup analysis of articles that described serum AFP levels in 88% of the patients (n=6, 136 patients, 14 recurrences), showed a sensitivity and specificity of 79% and 95%, respectively. The sensitivity of AFP levels to detect malignant recurrence was 96%.

Conclusions: Diagnostic accuracy of serum AFP levels to detect recurrent SCT seems promising, though sensitivity could be overestimated since serum AFP levels are mainly described in patients with elevated AFP levels or at recurrent SCT. Furthermore, serum AFP levels could be helpful to detect malignant recurrences.