Sex Hormones Implicated in the Pathogenesis of Primary Ewing Sarcoma of the Spine

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Inclusion databases, reaching radiotherapy in presentation, occurring with 50-70% of cases occurring in the sacrum.

Methods

A systematic literature search was performed in February 2017 querying several scientific databases, per PRISMA guidelines.

Inclusion criteria specified all studies and case reports of patients with ES located in the spine for all possible therapies, including spinal surgery, were considered and applied.

Studies with other sarcoma subtypes, non-human sarcoma, and no reported patient outcomes were excluded from the review.

Results

- 34 records were included in the review yielding 35 patients with ES of the spine.
- Despite age group 14-20 (Group 2) having the least number of patients in the study (28.6%), this group contained the largest number of subjects who died (60%). Patients in Group 2 were at 5 times greater risk for death than other age groups (p=0.01).
- Of the 14 patients in Group 1, only one died (7.1%). These patients showed an 81.2% relative risk reduction for death compared to other age groups (p=0.04).
- Within Group 2, 60% (n=6) experienced a Poor Outcome compared to 8% in Group 1 (p=1) and 30% in Group 3 (n=5) (p=0.03). Poor Outcome defined as an mRS score of 22-4.

Limitations

- Limitations to this research include the small sample size of our study population, restriction of location to the spinal region, heterogeneity of disease subtypes, retrospective nature of the study, and risk for reporting bias with case studies being reported only if the case or procedure is considered interesting.
- While our findings may hold true for bone sarcomas in other anatomical locations, further research is needed to confirm this.

Conclusion

Spinal ES significantly affects the juvenile population.

With the parallel risk for mortality and rising sex hormone levels in this age group, it is possible that sex hormones play a role in the pathogenesis of this type of sarcoma in the spine.

Further investigation of sex hormones and their receptors as possible therapeutic targets in the treatment of patients with ES of the spine is needed.

References


Contact Information

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