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CORRECTION

Correction to: The effectiveness and safety of proton beam radiation therapy in children and young adults with Central Nervous System (CNS) tumours: a systematic review

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In this article the reference numbers 60–68 and their citations were incorrect, and number 69 was missing in the References. As a result, publications were cited in the wrong places. The incorrect and correct texts and references are shown under the headings 'INCORRECT…' and 'CORRECT…' below, resp. The affected text is from the middle of the 9th to 12th paragraphs in the **Discussion** section, where reference numbers 60–68 are cited.

The original article has been corrected.

INCORRECT text and references

We originally planned to include studies with mixed tumour types provided data for individual tumours were reported. Three were identified [58–60] however, after examining these studies we felt that an element of reporting bias could be a factor, as not all the results were consistently reported across the tumour types with the possibility that only exceptional results had been reported, therefore we excluded these studies.

For PBT centres publishing work on expanding cohorts, it is important that it is clear which data has been previously reported, so that the data is not double counted in systematic reviews. Unique cohort identifiers could help this problem [61] such as the system employed for Randomised Controlled Trials [64]. However, this may cause issues with getting studies published as many journals follow the Inglefinger rule, which stipulates that only new previously unpublished data is published [62, 63]. Journals could help by allowing expanding cohorts and encouraging authors to be transparent. This is particularly pertinent to rare disease research where there are fewer patients available to study and where there is a tendency for specific specialist treatment centres to be research active and likely to report on expanding cohorts.

The medical literature has seen a great deal of debate on the necessity or ethical justification of conducting RCTs to evaluate PBT in children. Some commentators

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contend that equipoise does not apply as the superior dose distributions associated with PBT, must translate into improved patient outcomes and therefore an RCT would not only be unnecessary but unethical [7]. Others argue that it is unethical to use a technology that has had insufficient controlled evaluation of clinically relevant benefit [7, 65]. As well as ethical considerations, differences in the development of radiotherapy treatment compared to drug development also provide challenges in evaluating clinical effectiveness [66, 67]. This may explain why previous paradigm shifts in RT delivery technology, such as IMRT which have been widely implemented, were supported by relatively few RCTs in adults and none in children. The rarity of paediatric CNS tumours, the severity and delayed nature of many of the late effects and willingnessof patients and families to undergo randomisation may also render RCTs with late effect endpoints impractical [7, 68]

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