

The Brain Baroreflex – A Hidden Guardian of the Cerebral Circulation

Christabel Osei-Boateng, Jenna McCrone, and Michael M Tymko
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The referees have opted to remain anonymous.

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Re: JP-P-2025-288604 "The Brain Baroreflex - A Hidden Guardian of the Cerebral Circulation" by Christabel Osei-Boateng, Jenna McCrone, and Michael M Tymko

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We look forward to receiving your revised submission.

If you have any queries, please reply to this email and we will be pleased to advise.

Yours sincerely,

Kim Barrett
Senior Editor
The Journal of Physiology

EDITOR COMMENTS

Reviewing Editor:

Thank you for submitting a well-done Perspectives. please see minor, but very useful, comments from the reviewer.

REFEREE COMMENTS

Referee #1:

This perspective article by Christabel Osei-Boateng, Jenna McCrone and Michael Tymko discusses the fundings of the new study by Wittenberg and colleagues, "On the Regulation of Arterial Blood Pressure by an Intracranial Baroreceptor", in relation to historical and more recent data on this subject. The article is well written, and I only have a few minor comments for the authors to consider in their revision:

1. I think the first evidence in humans was reported by Eric Schmidt in 2005: Schmidt, E. A., Czosnyka, Z., Momjian, S., Czosnyka, M., Bech, R. A., & Pickard, J. D. (2005). Intracranial baroreflex yielding an early cushing response in human. *Acta Neurochirurgica. Supplement*, 95, 253-256. This was followed by a more detailed study published in 2018.
2. Lines 104-105, "For example, their data demonstrated an ~10-mmHg decrease in MAP in response to an ICP change from ~6- to ~0-mmHg". Perhaps better to say: "For example, their data demonstrated an ~10 mmHg decrease in MAP in response to acute craniotomy, associated with an ICP decrease from ~6 mmHg to 0 mmHg."
3. Lines 110-112, "This mechanism appears capable of overriding the traditional arterial baroreflex, ensuring blood pressure rises sufficiently to offset reductions in CPP". The data reported by Wittenberg and colleagues suggest that this is not entirely correct. There is no evidence that the arterial baroreflex is overridden or blocked; although baroreflex sensitivity is reduced, it continues to effectively regulate sympathetic activity at all levels of MAP that follow changes in ICP. These data support the hypothesis that, under these conditions, the arterial baroreflex is reset centrally (similarly to what occurs during exercise). Perhaps it would be better to say: "This mechanism appears capable of effectively re-setting the arterial baroreflex, ensuring blood pressure rises sufficiently to offset reductions in CPP"
4. Lines 130-133, The correct citation is: Cushing H (1901) Concerning a definite regulatory mechanism of vasomotor centre which controls blood pressure during cerebral compression. *Bull Johns Hopkins Hosp* 12: 290-292.

END OF COMMENTS

Dear Editor and Reviewer,

Thank you for providing feedback on our perspective article. We agreed with the reviewers feedback and integrated each of their suggestions into the article. Their feedback positively impacted the submitted article.

Dear Dr Tymko,

Re: JP-P-2025-288604R1 "The Brain Baroreflex - A Hidden Guardian of the Cerebral Circulation" by Christabel Osei-Boateng, Jenna McCrone, and Michael M Tymko

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Yours sincerely,

Kim Barrett
Senior Editor
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