Introduction:
Focusing on patients with mild head trauma, we assessed the relationship between optic nerve sheath diameter (ONSD), clinical symptoms potentially related to intracranial lesions and confirmed intracranial hemorrhage (ICH) evidenced by head CT, and further investigated the effect of application of optic nerve sonography (ONS) on these patients’ clinical management and outcome.

Methods:
We performed a prospective study in adult patients with mild head trauma (GCS 14 and 15) qualified for acquisition of urgent head CT scan. The clinical symptoms potentially related to intracranial lesion including abnormal vitals, vomiting, headache, persistent dizziness were recorded. ONS as well as head CT were then performed. All ONS examinations were executed by an experienced sonographer to eliminating interrater bias. Head CT findings were dichotomized as positive or negative finding for ICH based on formal radiology reports. The patients’ disposition including admission, surgery and safe discharge were followed.

Results:
78 patients were enrolled for the survey. 16 patients had at least one symptom related to potential intracranial lesion (20.5%). The mean ONSD was 44±9mm. 25 patients were found to have ICH and 6 underwent neurosurgery thereafter. No significant difference of ONSD was found between the groups with and without ICH, as well as the group receiving surgery or conservative treatment. With introducing a conventional 5mm threshold of ONSD, the sensitivity, specificity, PPV and NPV was 0.36, 0.83, 0.50 and 0.73, respectively. While incorporating occurrence of at least one positive clinical symptom with the ONSD measurement greater than 5mm as a composite threshold, the sensitivity, specificity, PPV and NPV was 0.32, 1.00, 1.00 and 0.76, respectively.

Conclusion:
The diagnostic value of ONS in mild head trauma is defective. Nevertheless, with the supplemental aid of recognition of clinical symptoms relevant to potential intracranial lesion, the overall accuracy would improve.