

## BACKGROUND

- The COVID-19 pandemic has had a significant impact on all patients with co-morbidities, particularly among those with liver disease.
- Patients with liver disease may have questions regarding the management of COVID-19 specific to their pathology and are increasingly turning to the internet for information.
- With the shift towards internet-based healthcare communication, particularly during the pandemic, the need for high quality patient information is increasingly important.
- There is currently a paucity of information on the quality of the information online related to liver disease and COVID-19 management.

## STUDY AIM

- This study evaluated the quality of online information and discussion topics related to liver disease and COVID-19.

## METHODS

- Google search engine was used to query “liver disease and COVID-19” to access the first 100 websites.
- Websites that were non-accessible, duplicates, or videos without transcripts were excluded.
- Websites were categorized as academic/professional, informational, personal/blog, or commercial.
- Discussion of topics pertinent to liver disease and COVID-19 management was reviewed.
- Discussion topics included: COVID-19 management in liver disease, outpatient treatment, inpatient treatment, risk of hepatotoxicity, liver transplant considerations, and immunosuppression considerations.
- Discussion of shared decision making and quality of life was noted.
- Statistical analysis was performed using two-tailed Fisher exact testing with significance set at  $p < 0.05$ .

## RESULTS

Figure 1: Discussion Topics on COVID-19 Management in Liver Disease

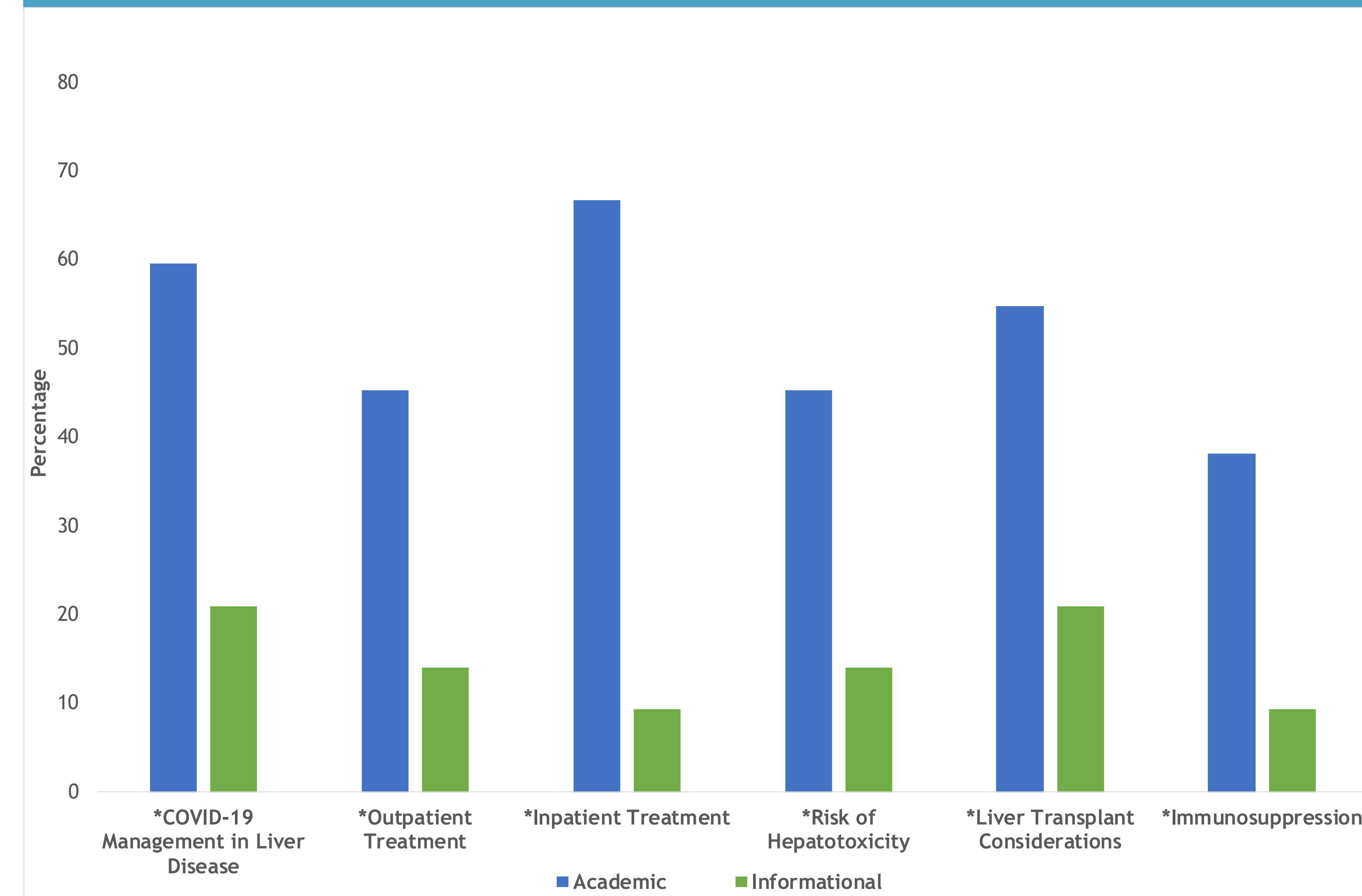


Figure 1: Bar graph plot demonstrating discussion topics of management considerations of COVID-19 in liver disease. All categories were discussed significantly more in academic compared to informational resources (\* denotes a statistically significant difference).

Table 1: Discussion Topics on COVID-19 Management in Liver Disease

Website Category	Academic	Informational	All
<b>Number (%)</b>	42 (48.3%)	43 (49.4%)	87
<b>COVID-19 Management in Liver Disease (%)</b>	25 (59.5%)	9 (20.9%)	34 (39.1%)
<b>Outpatient Treatment (%)</b>	19 (45.2%)	6 (14.0%)	25 (28.7%)
<b>Inpatient Treatment (%)</b>	28 (66.7%)	4 (9.3%)	32 (36.8%)
<b>Risk of Hepatotoxicity (%)</b>	19 (45.2%)	6 (14.0%)	25 (28.7%)
<b>Liver Transplant Considerations (%)</b>	23 (54.8%)	9 (20.9%)	32 (36.8%)
<b>Immunosuppression Considerations (%)</b>	16 (38.1%)	4 (9.3%)	20 (23.0%)

Table 1: Discussion topics pertinent to the management of COVID-19 in liver disease were noted, comparing websites based on category (academic, informational, or all websites). The number and percent of articles that discussed the above topics are recorded above. Academic websites discussed these subjects significantly more than informational websites.

## RESULTS

- Eighty-seven of 100 websites met the inclusion criteria.
- 42 (48.3%) websites were categorized as academic, 43 (49.4%) informational, and one each (1.1%) personal and commercial.
- Management considerations of COVID-19 in liver disease were discussed in 34 (39.1%) articles, outpatient treatment in 25 (28.7%), inpatient treatment in 32 (36.8%), risk of hepatotoxicity in 25 (28.7%), liver transplant considerations in 32 (36.8%), and immunosuppression considerations in 20 (23.0%).
- All topics were discussed significantly more in academic websites than in informational websites (COVID-19 management in liver disease,  $p = 0.0004$ ; outpatient treatment,  $p = 0.002$ ; inpatient treatment,  $p = 0.0001$ ; risk of hepatotoxicity,  $p = 0.002$ ; liver transplant considerations,  $p = 0.002$ ; immunosuppression considerations,  $p = 0.002$ ).
- Shared decision making was noted in 25 (28.7%) websites and discussed significantly more among informational websites (39.5% vs 16.7%,  $p = 0.030$ ).
- There was no significant difference in the discussion of quality of life between academic and informational resources ( $p = 1.00$ ).

## DISCUSSION

- Treatment considerations of COVID-19 in liver disease were discussed far more in academic and professional resources, likely due to scientific literature currently having the most up-to-date information online.
- Academic websites are more likely to discuss the nuances of up-and-coming treatments as well as their pathophysiological considerations than informational resources.
- Patients with liver disease likely have concerns over the interplay between COVID-19 and their condition and would benefit from more accessible and high-quality information on treatment considerations.
- As resources on liver disease and COVID-19 continue to grow, it will be important for websites to include comprehensive, patient-friendly information that emphasizes shared decision making.