



Research in Hepatology What is hot and what is not!

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Outline

- How to define “hot”?
- What is hot in clinical hepatology?
- Is this hot topic right for me?
- What other factors should be considered in choosing a research focus?

Definition of “hot”

- Attention: a lot of people are interested in it or talking about it
- Potential: field is moving, potential for breakthroughs and new discoveries
- Impact: common problem, affects many people, advances can have major impact
- Funding: identified as high priority for funding

Number of papers on human studies published in HEPATOLOGY in past 12 months

Topic	No. of papers
Hepatitis C	33
Cirrhosis and portal hypertension	19
NAFLD	19
Hepatitis B	14
HCC	12
Genetic markers and liver disease	6
PBC/PSC/AIH	5
Microbiome and liver disease	4
Alcoholic liver disease	0



Number of papers on liver diseases in human subjects published in English language 1/1/2011-12/31/2015

Topic	No. of papers
Cirrhosis and portal hypertension	43,068
HCC	20,217
Hepatitis C	17,130
Hepatitis B	12,694
Alcoholic liver disease	5,844
NAFLD	4,373
Microbiome and liver	496
Personalized medicine and liver	442

What is hot in 2016?

- By disease
 - Hepatitis C
 - NAFLD
 - HCC
 - Hepatitis B
 - Cirrhosis
 - PBC/PSC
 - Alcoholic liver disease

What aspect of NAFLD?

- Non-invasive diagnosis
 - What is the diagnostic question?
 - NAFLD vs. other liver disease
 - NAFLD alone vs. NAFLD + other liver disease
 - NAFLD vs. NASH
 - Stage of fibrosis

What aspect of NAFLD?

- Non-invasive diagnosis
 - Optimal method: transient elastography, MR, serum biomarkers..
 - Accuracy – what is the gold standard for comparison?
 - Availability
 - Practicality: diagnosis in community, primary care clinic, liver clinic
 - Cost
 - Local expertise

Many other aspects of NAFLD

- Disease burden
- Clinical prediction tool / screening
- Genetic markers
- Therapeutic Intervention
 - Behavioral/lifestyle modifications
 - Pharmacologic
 - Surgical/endoscopic procedure



What is hot in 2016?

- By pathophysiology / theme
 - Gut microbiome: cirrhosis, NAFLD, alcoholic liver disease
 - Fibrosis: non-invasive assessment, anti-fibrotic agents...
 - Sarcopenia and frailty: cirrhosis, HCC, liver transplant
 - Personalized medicine...
 - Bile acids: PBC, NAFLD, HBV...



What about sarcopenia?

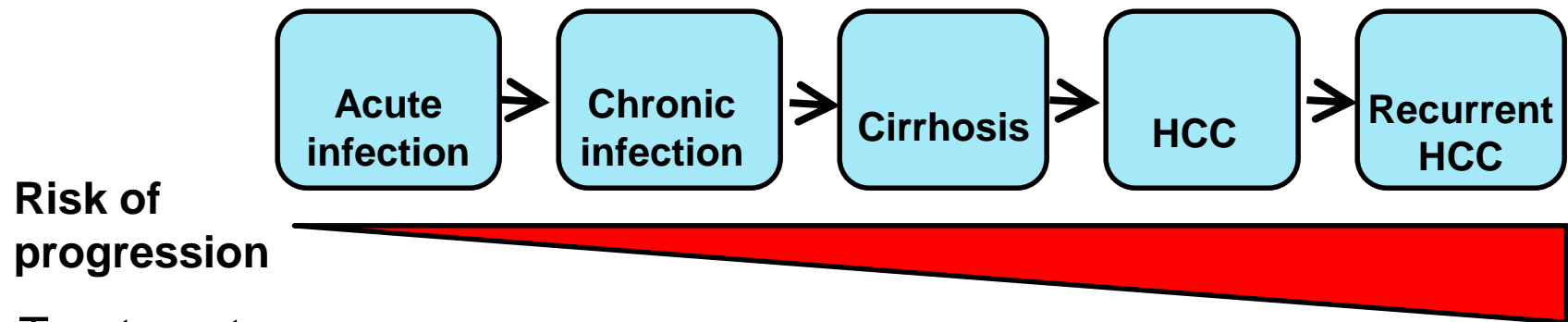
- As predictor of outcome
 - Mortality, hospital admissions
 - Cirrhosis, non-cirrhotics e.g. NAFLD?
- How to measure?
 - Direct: CT scan, mid-arm circumference, DEXA
 - Indirect: frailty measurements, e.g. grip strength
- How to reverse?
 - Nutrition, exercise
 - Treatment of underlying liver disease?

Personalized medicine: is the hepatology field ready?

- Tailoring of medical treatment to the individual characteristics of each patient
- To classify individuals into subpopulations that differ in their susceptibility to a particular disease
 - Rate of disease progression or prognosis
 - Response to a specific treatmentso that preventive or therapeutic interventions can be concentrated on those who will benefit, sparing expense and side effects of those who will not
- To provide optimal care according to individual patient's disease characteristics, personal preference, comorbidities, and social circumstances



Personalized Treatment of Hepatitis B



- When to start (stage of liver disease, symptoms, predicted risk of cirrhosis / HCC, patient preference)
- Which drug (predicted response, side effects, cost, patient preference)
- What dose (pharmacogenomics)
- When to stop (stage of liver disease, response, predicted risk of relapse, cost, patient preference for risk of stopping vs. continuing)

Staying ahead of the curve



Which topics will remain hot in the future?



Selecting a research focus

- Pick a disease or theme
 - Is this clinically important?
 - Is it hot now, will it still be hot 5 or 10 years from now?
 - Am I interested or passionate about this topic?
 - Am I in the right environment and do I have the right training, skills and tools to study this topic?

Right place, right time, right person



Right place, right skills

- Environment
 - Availability of patient population for study
 - Methods and tools needed for study in place
 - Collaborators, other expertise
- Training
 - Necessary skills and experience to conduct the study

Edge over competitors

- Environment with unique access to patient population, availability of novel technologies/assays, expertise and reputation in the selected topic
- Personal skills, experience, track record
- Mentors/collaborators experts in the topic
- Support: financial and others...

Is this hot topic right for me?



Which pair of jeans will look nice on me?

Picking the topic is only the beginning

- Define research question
- Design study
- Determine feasibility
 - Patients, methods, finances, staffing
- Map out logistics
- Follow through, monitor progress and adapt as needed
- Attention to details



Road to success can be bumpy



Keys to success

- Seek advice
- Plan well
- Pay attention to details
- Work hard
- Persevere but recognize futility and adapt and change course if needed

