The Financial Burden of Head and Neck Cancer

Grace Smith, M.D., Ph.D., M.P.H.

Introduction

Head and neck cancer typically requires complex, multi-modality treatment, especially when patients have advanced stage disease. While combined strategies using intensive therapy with surgery, chemotherapy, and/or radiation treatment have steadily improved patients’ outcomes over time, both the disease itself and the treatments for it can result in substantial side effects, symptoms and pain, swallowing and functional damage, medical complications like the need for feeding tube placement—and ultimately, a long recovery period. An important downstream effect of this disease and treatment course is the financial burden that head and neck cancer patients face. In a recent national study by Dr. Massa and colleagues using the U.S. Medical Expenditure Panel Survey data, head and neck cancer patients had significantly higher annual medical costs—more than $2,000 extra costs—leading also to higher out-of-pocket expenses than patients with other types of cancers.

The direct cost of cancer care is only one aspect of the financial burdens that head and neck cancer patients face. There are indirect burdens as well, such as transportation and housing costs needed to access cancer care. Other important added indirect burdens are patients’ lost work and productivity. Patients may temporarily or permanently be unable to care for their dependents. Even if caring for children or elderly parents may not be paid work in and of itself, patients express that losing their capacity to fulfill these responsibilities can ultimately translate into a major household financial stressor. Together, these various aspects of financial burden resulting from a cancer diagnosis and treatment can trigger additional negative downstream impacts on individual patients and their families: interruption, or complete abandonment of treatment, loss of health insurance benefits, delay, increased debt, inability to pay for food and shelter, and in some cases, even medical bankruptcy. There is a psychological cost of having financial burdens as well, with increased anxiety and worse quality of life in patients experiencing cancer’s financial burdens. Collectively, these multiple, interrelated burdens are termed “financial toxicity.” Financial toxicity in head and neck cancer patients, as well as cancer patients in general, has only been recently recognized in terms of its frequency, severity, and impact, with up to half of all cancer patients reporting any aspect of the direct, indirect, or psychological aspects of financial burden. Particularly for head and neck cancer patients, approximately one third report at least moderate stressors and even catastrophic levels of financial stressors.

Patients at Risk

Very few studies of financial toxicity to date have focused solely on head and cancer patients, and a better understanding is still needed in this population. Nevertheless, studies of cancer patients in general have identified several common risk factors relevant to head and neck cancer patients. Lack of health insurance or underinsurance, lower income, living alone, changes in employment (e.g. job loss), and younger age appear to predispose cancer patients to financial toxicity. A recent national study of cancer survivors by Dr. Yabroff and colleagues found that the risk of financial toxicity was more than double in patients younger than age 65 years vs. those age 65 and older. This “age effect” is likely attributable to multiple factors, including the protective factors of Medicare health insurance and relative stability of savings, assets, and retirement income in older patients, as well as the added stressors of potential job insecurity and dependent responsibilities faced by younger, working-aged cancer patients. With the patterns of developing human papilloma virus (HPV)-positive head and neck cancers changing—with more and more younger, working-aged patients being diagnosed—the risk and impact of financial toxicity in head and neck cancer patients is, unfortunately, expected to continue rising. Social isolation, cancer-related physical symptoms, missed work due to treatment duration and intensity, and medical complications like feeding tube placement appear especially to compound the risks of financial toxicity and the downstream impact in head and neck cancer patients. Being diagnosed with advanced stages of disease (as opposed to early stage cancer) and receiving chemotherapy are both risk factors for facing greater financial burdens during the
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cancer care trajectory. Since most patients will find out soon after
diagnosis whether their disease is advanced in stage and whether
they will expect chemotherapy, knowing their own risk factors for
financial burdens can help patients prepare financially as a part of
coping with their cancer. Recurrent cancer and requiring treatment
at the end of life are also two scenarios that are physically and
psychologically stressful, but also particularly financially stressful
as well.

Communicating with Oncologists

How can cancer patients and their oncologists communicate well
about financial burdens during cancer treatment? One of the most
troublesome aspects of U.S. cancer care and health care in general is
the difficulty for both the patient and the physician to forecast exactly
how much the cancer treatment course will cost, and therefore, to
satisfactorily discuss and prepare for this cost as soon as possible
after diagnosis. While one problem is the lack of price transparency
in a third-party payer-based health care system, another problem
is clinical uncertainty in cancer’s disease course—the unexpected
complication of recurrence or progression to metastatic disease
that can require extended, expensive and time-consuming courses
of therapy.

Despite these challenges, the relatively new idea of bettering
“cost communication” between patients and oncologists is
increasingly recognized. A comprehensive review of cancer
patient studies found that the majority of patients preferred having
a discussion of costs with their oncologists, and many sought to
relate cost discussions directly to their decisions about cancer
 treatment. Other patients expressed that they still wanted to hear
about cancer treatment costs—even if those costs were expected
to be high. Cancer patients may therefore find it empowering and
engaging when they initiate a discussion about the spectrum of
aspects of financial burden with their oncologist, including ways
to strategize lower out-of-pocket medical costs (such as using
generic prescriptions when possible—not necessarily available
for chemotherapies, but often available for pain and symptom
medications) or ways to organize and sequence their treatment and
supportive care to minimize lost work days.

Accessing All Available Resources

Because the direct cost of medical care is not the only aspect of
financial toxicity, physicians are not the only members of the care
team who can offer resources to help. Practices and hospitals often
provide access to resources such as social work, where patients can
find help for housing and transport to treatment as well as referral
to patient assistance and prescription assistance programs, community
resources and non-profit organization case managers to help with
financial stressors and planning in patients with cancer. Other
facilities provide on-site patient navigators, financial navigators,
or financial counselors who can discuss financial aid or payment
plans. Such professionals may be able to provide key information
for patients and families on how to assess their financial resources,
spending, and debt. Many facilities offer multidisciplinary clinical
services, with psychosocial and symptom supportive care often
providing the critical holistic support needed to help patients to cope
overall. Patients and caregivers also may overlook, early on in the
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cancer treatment trajectory, communicating with their employers to access employee benefits, for example, medical leave or work accommodations (e.g., offsite arrangements and refocused responsibilities or schedules) that allow patients or their caregivers to continue working through treatment. Patients may also assess at the time of employment benefits renewals whether they have the best fit insurance option to match with their expected treatment needs. Families and friends can often serve as the bridge of support to help patients and caregivers seek out these resources—a vitally important role, since communication and connection to support resources lead at least one cost reduction strategy up to 40% to 50% of the time.

Research Directions
While head and neck cancer patients specifically remain both at high risk and understudied, there are several active national studies ongoing that seek to provide insight into the problem of— and hopefully solutions to—financial toxicity in several different cancer patient populations. The Longitudinal Assessment of Financial Burden in Patients with Colon and Rectal Cancer Treated with Curative Intent (NCT03516942) study being conducted in the Eastern Cooperative Oncology Group/American College of Radiology Imaging Network (ECOG-ACRIN) Cancer Research Group. Another study includes patients with metastatic colorectal cancer, called the Implementation of a Prospective Financial Impact Assessment Tool in Patients with Metastatic Colorectal Cancer Trial (NCT0272880), conducted in the Southwest Oncology Group (SWOG). These studies look at predictors and outcomes of financial burdens in patients with colorectal cancer. A pilot study supported by the Alliance for Clinical Trials in Oncology (Cancer Care Delivery Research), Understanding and Addressing Patient and Provider Preferences Around Discussions of Cost of Breast Cancer Care, focuses on developing strategies for bettering oncology cost communication. Another study is the Work Ability in Young Adult Survivors (NCT03148080) research, which seeks to provide a more detailed understanding of the unique financial difficulties faced by working aged cancer survivors.

Looking Ahead to the Future
What is clearly now most needed, however, are studies of financial toxicities devoted to head and neck cancer patients and survivors. As a future direction, an almost entirely unexplored factor is how advancing head and neck cancer therapies could impact— positively— this rising problem of financial toxicity in patients. Our research group is examining the comparison between proton and photon radiation treatment in a trial of oropharyngeal cancer patients, (NCT01893307) and we are specifically asking the question whether reducing toxicities by optimizing the option chosen for curative treatment could actually reduce patients' long-term work impairments and restore patients' productivity. Discovering the impact of existing and new therapies on patients' ability to be productive, function at work, in households, and societally, is one of the most important advances we are seeking to accomplish through this project. As cancer patients, providers, professional societies, and the community of survivors looks forward to a new decade of advocacy, resource-building, research, policy development, and leadership in 2020 and beyond, it is clear that concern and response to financial toxicity needs to rise as a priority to address in head and neck oncology care and survivorship.

Editors Note: Grace L. Smith, MD, PhD, MPH is an Assistant Professor in the Departments of Radiation Oncology and Health Services Research at The University of Texas MD Anderson Cancer Center. Her clinical focus is on the treatment of gastrointestinal cancers. Her research focuses on assessing the comparative effectiveness, delivery, quality and value of radiation treatment in breast, lymphoma, and gastrointestinal cancers. She is currently principal investigator on a National Institutes of Health K07 award to study the financial toxicity of cancer treatment.

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January 8, 2020 - University of Georgia - A new study at the University of Georgia has found a way to attack cancer cells that is potentially less harmful to the patient. Sodium chloride nanoparticles — more commonly known as salt — are toxic to cancer cells and offer the potential for therapies that have fewer negative side effects than current treatments.

Led by Jin Xie, associate professor of chemistry, the study found that SCNPs can be used as a Trojan horse to deliver ions into cells and disrupt their internal environment, leading to cell death. SCNPs become salt when they degrade, so they’re not harmful to the body.

“This technology is well suited for localized destruction of cancer cells,” said Xie, a faculty member in the Franklin College of Arts and Sciences. “We expect it to find wide applications in treatment of bladder, prostate, liver, and head and neck cancer.”

Nanoparticles are the key to delivering SCNPs into cells, according to Xie and the team of researchers. Cell membranes maintain a gradient that keeps relatively low sodium concentrations inside cells and relatively high sodium concentrations outside cells. The plasma membrane prevents sodium from entering a cell, but SCNPs are able to pass through because the cell doesn’t recognize them as sodium ions.

Once inside a cell, SCNPs dissolve into millions of sodium and chloride ions that are trapped inside by the gradient and overwhelm protective mechanisms, inducing rupture of the plasma membrane and cell death. When the plasma membrane ruptures, the molecules that leak out signal the immune system that there’s tissue damage, inducing an inflammatory response that helps the body fight pathogens.

“This mechanism is actually more toxic to cancer cells than normal cells, because cancer cells have relatively high sodium concentrations to start with,” Xie said. Using a mouse model, Xie and the team tested SCNPs as a potential cancer therapeutic, injecting SCNPs into tumors. They found that SCNPs suppressed tumor growth by 66% compared to the control group, with no drop in body weight and no sign of toxicity to major organs.

They also performed a vaccination study, inoculating mice with cancer cells that had been killed via SCNPs or freeze-thaw. These mice showed much greater resistance to a subsequent live cancer cell challenge, with all animals remaining tumor free for more than two weeks.

The researchers also explored anti-cancer immunity in a tumor model. After injecting primary tumors with SCNPs and leaving secondary tumors untreated, they found that the secondary tumors grew at a much lower speed than the control, showing a tumor inhibition rate of 53%.

Collectively, the results suggest that SCNPs killed cancer cells and converted the dying cancer cells to an in situ vaccine.

SCNPs are unique in the world of inorganic particles because they are made of a benign material, and their toxicity is based on the nanoparticle form, according to Xie.

“With a relatively short half-life in aqueous solutions, SCNPs are best suited for localized rather than systemic therapy. The treatment will cause immediate and immunogenic cancer cell death,” he said. “After the treatment, the nanoparticles are reduced to salts, which are merged with the body’s fluid system and cause no systematic or accumulative toxicity. No sign of systematic toxicity was observed with SCNPs injected at high doses.”

**SURVIVOR NEWS**

On January 8th, head and neck cancer survivor, and SPOHNC member, Denise DeSimone, visited Oncorus, Inc., a biotech company in Cambridge, MA. Denise is the author of ‘From Stage IV to Center Stage’ and is a mentor, singer and minister. She was also a Keynote Speaker at SPOHNC’s 20th Anniversary Conference and Celebration of Life. Speaking to an audience of 30+ Oncorus employees, Denise shared the story of her personal journey with head and neck cancer, from diagnosis through treatment. She talked about the stringent radiation treatment that she went through, its side effects and the impact that she experienced from the current standard of care therapies. She encouraged the need for better treatments for head and neck cancer patients and provided a message of hope, positivity and courage as a head and neck cancer survivor.

Denise’s story was an inspiration to the Oncorus employees in attendance, and served as an impactful reminder of how patients like her can benefit from the impact of our work.

Oncorus would like to thank SPOHNC for connecting us with Denise.

Oncorus is advancing a pipeline of next-generation viral immunotherapies for multiple solid tumor indications with significant unmet needs. Their mission is to realize the full promise of viral immunotherapy for cancer patients. HNSCC is one of the indications for their clinical trial with ONCR-177.
Some reflective thoughts for those that are currently going through radiation...

I’m 3-1/2 months post surgery, chemo, and radiation. For some reason, I’m finding myself very reflective today, and just wanted to share these thoughts with anyone that’s currently facing this struggle.

*It gets better. It really does.*

I remember the drives each morning to treatment. I remember going into the changing room each morning, to take off my shirt and put on my hospital gown. I remember my rituals. Rituals that quite honestly were more out of fear than faith.

I’ve struggled with religion all of my adult life. Brought up Catholic, married to a Jewish woman, raising our kids as religious “mutts,” celebrating all of the Holidays, but not doing much more, as far as praying and teaching the children about either religion.

But my “ritual” began with the first day of treatment. I was so scared. This was all so foreign to me. So intimidating. The mask. The team of doctors. The waiting room full of “sick” people. A waiting room that I had never experienced before, nor did I want to. A family that I knew I wanted to be brave in front of. This was all so scary.

So my ritual began. For 33 days. 33 treatments. I’d enter the changing room alone. I’d take my shirt off, put my gown on, and sit behind the changing curtain. First day, not knowing what to expect. The second day, and every day after, knowing that each day would bring on more pain. More dry mouth, more hurting throat, more burnt skin, more difficulties, more fear of what was to come, more questioning of if I’d make it through.

Each day, more out of fear than faith, I would read from a pocket card that I picked up in church, the “Prayer to Saint Michael.” This prayer was my daily battle cry before radiation.

Each day, after treatment, I’d go right back behind the changing curtain. I’d thank God for getting me through another treatment. I’d say the “Our Father” and the “Hail Mary.” I’d thank God for getting me through that day’s treatment, and I’d ask him to get me through all future treatments, and to not allow cancer to enter my home again.

Today, 3-1/2 months out, I still ask Him for that. “Please God, don’t let cancer enter this house again.” And I still thank Him.

To each day of treatment, I wore my “Battle Uniform.” Just before treatment began, I ordered some shirts online — “F CANCER.” “...TODAY, I AM THE STORM,” etc. These shirts were my uniform for each day’s battle. Each day, I knew would be worse than the last. But, I knew I had to fight. I knew I had to make it through.

On the last day, My Wife, My Parents, My three Children, and My Sister-in-Law all came with me. On one hand, I was happy to have them all there. On the other hand, for reasons I still can’t find words to explain, I kind of didn’t want them there. I don’t know why, but despite the love, support, and comfort, I still had this feeling of loneliness.

Loneliness because even though my Loved Ones watched me go through this. Even though they hugged me, helped me, pushed me, and inspired me, none of them knew what I was feeling. None of them knew how intimidating this monster I was fighting could be. I was, and still am glad they don’t. I don’t want ANYONE, to have to face this beast. Especially not MY Loved Ones.

So, that last day of treatment was here. I was tired. I was scared. I was relieved. I was scared. I was beat. I was scared. I was battered. I was scared. Did I mention I was scared?

BUT, I was there. I was there for the last round of this particular fight. I was there. I showed up. 33 rounds. I showed up. I fought. I went through my ritual.

On this last day. Round 33, I was fortunate enough to have my loved ones with me. Before entering the changing room, I said to my Dad, “Come with me. I just want to share my daily ritual with you.”

Some background info on My Father. Man of Men. Larger than Life. Stronger than a Locomotive. More Determined than ANYONE I’ve EVER known. An INVINCIBLE Man. His Father died in a work accident when My Dad was only 3 months old. My Father grew up in a housing project. My Father witnessed His older brother get senselessly murdered. My Father became a Father to Me at the ripe old age of 18. My Father became a Man long before I ever had to.

So My Battle wasn’t just mine. My Battle was for My Father. My Battle was My Opportunity, in some strange sort of way in my head, to show My Father that His STRENGTH, His DETERMINATION, His own “Battle Scars” were instilled in Me. On that last day, I wanted to show Him that I understood that this Battle was OURS. The fact that I came into this world when He was only 18 (still a “kid” but with more experiences under His belt than most men have had at 60), caused Me to believe that I HAD to show Him that all of His sacrifices weren’t for naught. His sacrifices HAD to be worth something. My Life HAD to be worth My fighting for. I HAD to show him that I would fight for the Life He and My Mother had given me. That I would fight with dignity. That I would fight with EVERY bit of strength that I could find. I HAD to show Him that, without a doubt, His sacrifices weren’t in vain.

And, I needed to show Him that just as He showed up, faced, and conquered each of His Battles, His ONLY Son was, thanks to His strength, showing up and facing His own.

So, there we were. Both scared. Both intimidated, and Both relieved that this was the last of 33. I took My Dad into the changing room with Me. I sat Him down on the bench behind the curtain with Me. I pulled out My “Prayer to St. Michael” prayer card. I told Him, “this is My daily Battle-cry.” We read it together, then exited the changing room.

My name was called. Together with My Loved Ones, we walked down the hall for round 33. The final round of this particular battle. The final round before THE Bell!

With hugs from everyone, I got on the table, and heard those loud clicks that

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fastened my mask to the table. I heard them louder and clearer than ever.

For one last time, I heard the door to the radiation room close. For one last time, I heard the sirens. For one last time, I lie there scared, alone, uncertain of what was to come AFTER this particular fight.

Finally, after what had now become the longest, most reflective, most uncertain five minutes... Finally, I heard “alright Michael, that’s it, I’ll be right in to remove the mask.”

As the Radiation Techs removed the mask, they asked if I wanted to take it with me. Without a second thought, my response was “NO, please just get it to the dumpster.” I didn’t want it. I didn’t want anything that was to remind me of this battle.

In fact, when I got home, I had My Dad help me take a metal trash can to the backyard, I put all of the clothing that I wore to radiation treatments, including my “uniforms.” All of the shirts, the jeans, the shoes, the socks, even my underwear. I burned it all. I wanted NOTHING that entered that changing room and radiation room with me. I would not wear those clothing again. That “uniform” was gone. These were NOT collector’s items to Me.

Back to the hospital story — upon exiting Round 33, My Family was there. The nurses were there. Other patients were there. And a shiny bronze bell was there. A bell that I walked past every day. A bell that I knew I HAD to give Myself the opportunity to ring one day. My day had finally arrived.

Battered, burnt, bruised, but NOT BROKEN, I rang THAT Bell 3 times. I cried. My Family cried. Some nurses cried. My time had finally come.

I imagined that on this day, I’d have “clarity.” I’d have answers. I’d be certain that there was or wasn’t a “God.” But when the day came, all I knew was that I didn’t want to face this beast again. I thought of Rocky Balboa. I heard Apollo Creed, saying, “There ain’t gonna be no rematch,” and Rocky saying, “I don’t want one.” That’s ALL I knew. I DON’T WANT A REMATCH.

So, there it was. Round 33 was in the books, and I walked out of the ring with My Family by My side. I took My Dad into that changing room with Me. We said the “Our Father” and the “Hail Mary” together. For one last time, I followed My “ritual,” with My Hero by My side. We hugged. I thanked Him for being by My side. Then, I left that changing room for the last time.

So, guys and gals. IT GETS BETTER. We fight on. We learn more than we ever wanted to know. About ourselves. About our friends. About our families. We fight. We learn. Then we fight some more.

The Facebook support pages have helped me through this Battle. Some posts have scared me. Some posts have saddened me. But ALL of the posts have helped me. I found Myself praying for those I don’t even know. I’ve found Myself fighting for those that lost their battles.

I’ve found Myself PROUDLY representing ALL OF YOU, even though You never asked me to. Even though we’ve never met.

We are ALL teammates in this Battle we NEVER signed up for. We are ALL fighting the same enemy. We WILL continue to fight this enemy and it’s teammates. It’s teammates are these side effects that we all have been or will be facing.

So, that’s my story. That’s what I’ve been reflecting on today. Thanks for reading. Thanks for everything.

And to that God, the One I thank, the One I question, the One I HOPE exists, the One I fear to question... to that God, I humbly ask, PLEASE, don’t let this monster enter OUR homes again. Please God, make certain that, for all of Us, “THERE AIN’T GONNA BE NO REMATCH!”

Friends — Fight your Fight. Face your Battle. For Yourself. For Your Family. For Your Doctors. For Your Friends. And For US, YOUR TEAMMATES. Thank You All.

~ Mike Loose
mloosejr@verizon.net
**Seafood Casserole (from Volume One)**

1 stick butter  
1 green bell pepper, chopped  
1 - 4oz. jar pimentos, chopped  
2 ½ Tbsp. flour  
½ pt. cream  
1 c. milk  
½ lb. light Velveeta cheese, or regular, if desired, diced  
6 to 8 oz. cooked noodles, drained  
1 lb. lump crabmeat  

Melt butter. Add pimentos and green pepper. Simmer, stir in flour; add milk, then the cream. Cook until thickened. Melt cheese into this mixture. Add crabmeat and stir. Place noodles in a buttered casserole dish. Pour sauce over noodles and bake in preheated 350 degree oven for 30 to 35 minutes. Yields 4 (11 ounce) servings. 772 calories/serving.

Note: Cooked chicken or ham may be substituted for crabmeat. For fewer calories and fat you may substitute 1 cup chicken stock for cream and 1 cup evaporated milk for whole milk.

~ Member of SSF, PA

**Chocolate Roll (from Volume Two)**

1 c. sifted confectioners sugar  
5 large eggs or 6 if small  
3 Tbsp. cocoa, sifted  
½ pt. heavy cream, whipped  
1 tsp. vanilla extract  

Beat together 5 or 6 egg yolks and add flavoring. Beat egg whites until they peak. Add sugar, one tablespoon at a time. Set aside. Fold sifted cocoa into egg yolks an beat until light, creamy and thickened. Fold in beaten egg whites. Spread the chocolate mixture onto a greased and flour lined cookie sheet or use parchment paper fitted into cookie sheet and overlapping on each end. Bake at 350 degrees for 20 minutes. When done, turn cake out onto a towel and sprinkle with confectioners sugar. Cover with damp cloth to cool in refrigerator for about an hour. Turn cake onto counter dusted with confectioners sugar and spread whipped cream flavored with vanilla. Gently roll the cake into a roll. Transfer to a serving plate and dust with sugar or cover entire roll with whipped cream. Serves 8. 212 calories/serving.

~ Hannah Swenson, NY
HEAD AND NECK CANCER NEWS

New HPV saliva test may speed detection of mouth, throat cancers

December 23, 2019 - Dr.Bicuspid.com

Scientists have fused acoustics and microfluidics in a novel saliva test designed to show within minutes whether a person has a high-risk strain of HPV associated with mouth and throat cancers. Results were published online December 13 in the Journal of Molecular Diagnostics.

Investigators at Duke University, the University of California, Los Angeles (UCLA), and other institutions developed an acoustofluidic noninvasive technique that analyzes saliva for the presence of HPV type 16, the pathogenic strain that causes oropharyngeal cancers (OPCs). Their acoustofluidic platform detected OPC in the saliva of 80% of patients with cancer confirmed by tissue biopsies, reported co-lead investigator Tony Jun Huang, PhD, a professor of mechanical engineering and mechanical science at Duke, and colleagues.

Acoustofluidic exosome isolation chip for salivary exosome isolation. The microfluidic channel is shown by a red dye solution and a coin demonstrates the size of the chip. Two pairs of gold interdigital transducers are deposited along the channel, which separates particles according to size. Image courtesy of the Journal of Molecular Diagnostics.

OPC rises with HPV

This type of novel rapid-detection method has potential to enable early detection and improve health outcomes. Currently, diagnosis involves clinical examinations -- visual and palpation -- that are unable to pick up premalignant lesions in oral cavities. The incidence of OPC has been rising fast along with HPV, and there are approximately 115,000 new cases reported worldwide every year, the authors noted. The five-year survival rate is less than 50%, worldwide every year, the authors noted. The five-year survival rate is less than 50%, underscored the need for better screening and detection methods.

For the study, the researchers analyzed saliva samples from 10 patients diagnosed with HPV-OPC using traditional methods. They found that their technology combined with Droplet Digital polymerase chain reaction (ddPCR, Bio-Rad) identified HPV16 DNA in 80% of confirmed OPC cases. Reverse transcription PCR analysis showed that the average yield of salivary exosomal small RNA from the acoustofluidic platform is 15 times greater than with the current gold standard: differential centrifugation. Essentially, the acoustofluidic platform can achieve high-purity, high-yield salivary exosome isolation for downstream salivary exosome-based liquid biopsy applications.

And because isolation is derived using low power intensity surface acoustic waves, it’s gentler than long-term exposure to a high centrifugal force. So, the platform can isolate structurally intact and biologically active exosomes.

Moreover, the genomic and proteomic profiling efficiency of liquid biopsy is significantly optimized by the high purity and yield properties of acoustofluidics, which make it possible to examine rare exosomal microRNAs and protein signatures in the saliva of patients who have OPC.

Isolating salivary exosomes

Exosomes are tiny microvesicles originating within cells secreted into body fluids. Their numbers are elevated with the onset of different types of cancers. In acoustofluidics, fluid samples are analyzed by a small acoustofluidic chip that isolates salivary exosomes by removing unwanted particles based on size, leaving exosome-rich concentrated samples that make it easier to detect tumor-specific biomarkers.

The researchers optimized their acoustofluidic platform for isolating exosomes in saliva samples that had different physical qualities, including different viscosities. Because the scientists’ high-yield exosome isolation approach can tolerate variability among samples caused by changes in saliva viscosity and collection methods used, it may be useful in clinical settings.

“These data showed that this platform is capable of consistently isolating exosomes from saliva samples, regardless of viscosity variation and collection method,” Huang and colleagues wrote.

Speeding detection

The scientists developed their diagnostic test based on the assumption that salivary exosomes are packaged with HPV-associated biomarkers, and that efficiently enriching the exosomes by isolating them could enhance diagnostic and prognostic performance of a test for HPV-OPC. The new automated and fast isolation technique requires less than five minutes of processing time, compared with approximately eight hours of processing time using benchmark technologies.

Acoustofluidics automates exosome isolation and eliminates multistep protocols that would require several instruments and trained technicians. In addition, the 10 to 20 minutes needed for turnaround and the small amount of sample required enhance biosafety and would make high-throughput screening possible in extensive patient populations, the authors noted.

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CHAPTER NEWS

Home for the Holidays - from the desk of Chuck Bartlett, Minneapolis, MN SPOHNC Chapter Facilitator

The Minneapolis, MN SPOHNC Chapter is well established and has been active for 15 years. During those years we have started a tradition that we each look forward to.

Much like other chapters we have monthly meetings, all very casual, we sit in a circle, welcome newcomers, telling our story and updating others on any changes or current treatments. We have from ten to some times more than twenty people. Everyone gets a chance to talk because talking is one of the best forms of therapy. Many times we have been told that the SPOHNC meetings have given people understanding of what they are going through, what to expect and most importantly hope for the future. Just talking with someone that went through treatment years ago gives them a glimpse of a brighter time to come.

However the tradition I am referring to is not the monthly meetings, but our annual potluck social gathering. Members of our group, Mike and Else Sevig, have hosted this gathering for eight years. They have not only come to our meetings as survivor and caregiver but have been ardent supporters of the group from their first visit. They very graciously open their home every year in November to host a festive potluck, always more food than we can possibly eat. For those who still have difficulty eating we have a variety of soups and soft foods and for the others you name it and it is probably there. No one goes away hungry, but most importantly we solidify our relationship as the family we have become over the years.

Our chapter has become a family even though we are a mix of different religions, politics, and social background. We have several whose spouses have not made it through treatment. They still come to celebrate the one thing we all have in common; life as it’s given to us as long as it’s given to us. Love and concern for one another is the secret that we all embrace.

Twenty one attended this year’s potluck including two visitors from California. We were treated to an impromptu performance by our hosts singing Norwegian folk songs. Mike and Else sang with Mike playing the guitar. They have performed in the past and have produced several CDs. It was a wonderful addition to a great gathering of friends and thoroughly enjoyed by all.

A SPOHNC Chapter is much more than a place to meet because you have been unfortunate enough to contract a disease. It is a place to find comfort and encouragement not only for the patient but for the caregiver, family and friends. There is healing in numbers as well as healing in opening up and voicing your fears and concerns to others who are listening with open hearts and minds, others who have been there and know exactly what you are going through. We are all thankful for SPOHNC and your efforts to help us along the path to recovery.

CHAPTER NEWS

SPOHNC’s Medford, OR Chapter is Moving!

For those of you who attend or are thinking of attending the SPOHNC Medford, Oregon, Chapter Support Group meeting, please make note of the change of location. After 12 years of supporting patients and survivors and their families at the Providence Medical Center, the meeting is moving. You can gain the same amazing support, but beginning with their January meeting, the group now meets at Asante Rogue Regional Medical Center. For information, contact SPOHNC at 1-800-377-0928.

The group held its final Providence meeting in December, and Richard Boucher presented a Certificate of Appreciation to the hospital on behalf of the support group.
HEAD AND NECK CANCER NEWS

Pembrolizumab changes standard of care for recurrent, metastatic head and neck squamous cell carcinoma

December 29, 2019 - Pembrolizumab in combination with platinum-based chemotherapy appeared to be a safe and effective first-line treatment for recurrent or metastatic head and neck squamous cell carcinoma, according to results of the randomized phase 3 KEYNOTE-048 study published in The Lancet.

Researchers also deemed first-line monotherapy with pembrolizumab (Keytruda, Merck) to be appropriate for patients with PD-L1-positive recurrent or metastatic HNSCC, based on safety and efficacy data.

“I do believe the results of this study have already changed the standard of care,” Barbara Burtness, MD, professor of medicine at Yale University School of Medicine and Yale Cancer Center, and HemOnc Today Editorial Board Member, told Healio. “The FDA approved pembrolizumab in the first line in June, so pembrolizumab monotherapy for patients with PD-L1 expression, as well as pembrolizumab plus chemotherapy for all patients, is now the standard of care.”

Combining chemotherapy with immune checkpoint inhibitors makes sense in HNSCC because it disrupts tumor architecture that can reduce immune exclusion, results in antigen shedding and encourages rapid disease control, Burtness and colleagues wrote.

Researchers conducted the current trial to determine whether the PD-1 inhibitor pembrolizumab, as monotherapy or in combination with chemotherapy, improves OS compared with the EGFR inhibitor cetuximab (Erbitux, Eli Lilly) and chemotherapy among patients with recurrent or metastatic HNSCC.

The investigators randomly assigned 882 patients with previously untreated recurrent or metastatic HNSCC to pembrolizumab monotherapy (n = 301), pembrolizumab with carboplatin or cisplatin and 5-FU (n = 281), or cetuximab with carboplatin or cisplatin and 5-FU (n = 300).

Among all patients, 754 (85%) had a PD-L1 combined positive score (CPS) of 1 or more and 381 (43%) had a CPS of 20 or more.

OS and PFS served as the study’s primary endpoints. Secondary endpoints included safety and tolerability.

Median follow-up was 11.5 months in the pembrolizumab monotherapy group, 13 months in the pembrolizumab-chemotherapy group and 10.7 months in the cetuximab-chemotherapy group.

Results of the second interim analysis showed pembrolizumab alone improved OS compared with cetuximab plus chemotherapy among patients with a CPS of 20 or more (median, 14.9 months vs. 10.7 months; HR = 0.61; 95% CI, 0.45-0.83) and among those with a CPS of 1 or more (median, 12.3 months vs. 10.3 months; HR = 0.78; 95% CI, 0.64-0.96). OS with pembrolizumab monotherapy appeared noninferior to that of cetuximab and chemotherapy among the total population (median, 11.6 months vs. 10.7 months; HR = 0.85; 95% CI, 0.71-1.03).

Researchers observed significant improvement in OS with pembrolizumab plus chemotherapy vs. cetuximab and chemotherapy among all patients (median, 13 months vs. 10.7 months; HR = 0.77; 95% CI, 0.63-0.93) at the second interim analysis. They also reported a significant OS benefit at final analysis among patients with a CPS of 20 or more (median, 14.7 months vs. 11 months; HR = 0.6; 95% CI, 0.45-0.82) and those with a CPS of 1 or more (13.6 months vs. 10.4 months; HR = 0.65; 95% CI, 0.53-0.8).

Neither pembrolizumab monotherapy nor pembrolizumab plus chemotherapy improved PFS at second interim analysis.

Grade 3 or worse all-cause adverse events occurred among 55% (n = 164) of patients treated with pembrolizumab monotherapy, 85% (n = 235) of patients who received pembrolizumab plus chemotherapy, and 83% (n = 239) of those who received cetuximab plus chemotherapy. Adverse events that led to death occurred among 8% (n = 25) of patients in the pembrolizumab monotherapy group, 12% (n = 32) of the pembrolizumab-chemotherapy group, and 10% (n = 28) of the cetuximab-chemotherapy group.

Inconsistent access to second-line PD-1 and PD-L1 inhibitors across countries that enrolled participants, the lack of statistical power to compare outcomes in the pembrolizumab monotherapy and pembrolizumab-chemotherapy groups, and the open-label design of the study served as limitations.

“There have been several completed trials of checkpoint inhibitors in combination with chemoradiation, but these have not been reported yet,” Burtness said. “As well, there is some evidence for activity in the preoperative setting. I anticipate that there will be some indications for the immune checkpoint inhibition in the definitive setting in the future.”

The change in standard of care has substantial implications on subsequent therapy, according to an accompanying editorial by Robert L. Ferris, MD, PhD, FACS, director of UPMC Hillman Cancer Center, Hillman professor of oncology and associate vice chancellor for cancer research at University of Pittsburgh, and Lisa Licitra, MD, PhD, interim director of medical oncology in the head and neck cancer department at Istituto Nazionale Tumori in Milan.

“Notably, a higher than expected response was seen with cytotoxic chemotherapy in patients who had not improved on previous anti-PD-1 or PD-L1 monoclonal antibodies, first in non-small-cell lung cancer and more recently in HNSCC, which could be mediated by the long half-life of these antibodies,” Ferris and Licitra wrote. “These findings need to be prospectively validated, including an investigation into what cytotoxic agents or combinations provide the most efficacy post-failure of PD-1-based immunotherapy. There is also an urgent need for new immunotherapeutic approaches for patients who have not improved on previous immunotherapy.”

“Thank you for all that SPOHNC does on a daily basis to help support oral and head cancer patients and survivors.”

~ Dave H.
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